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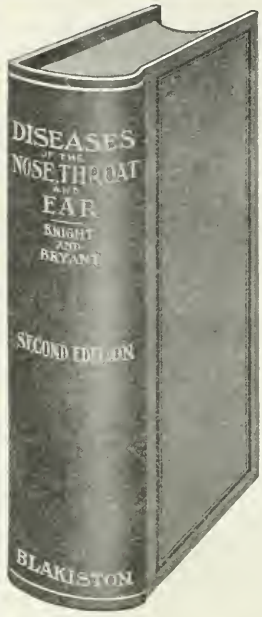

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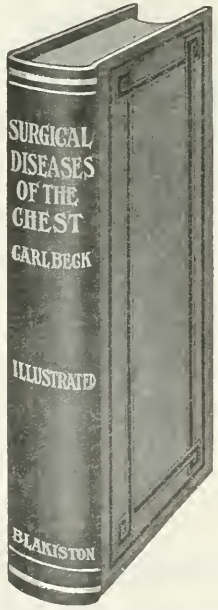

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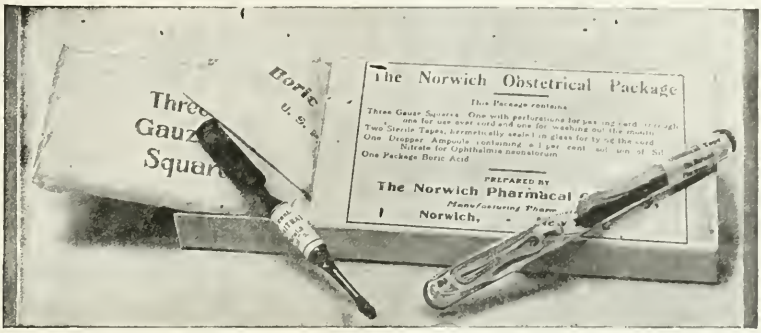

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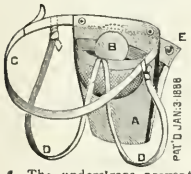

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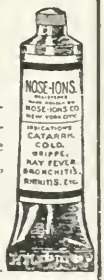

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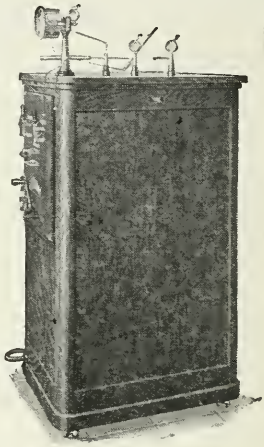

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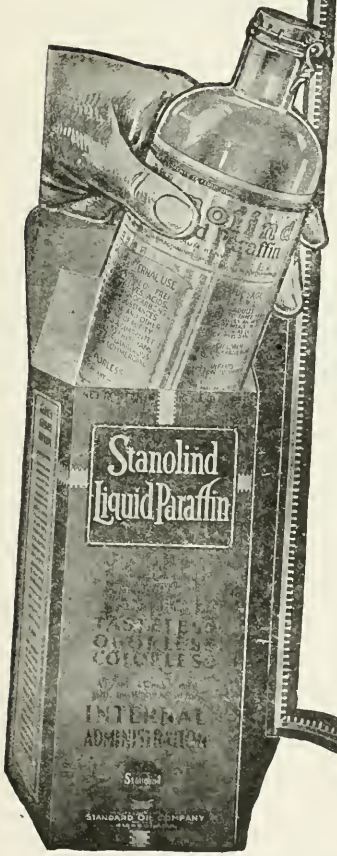

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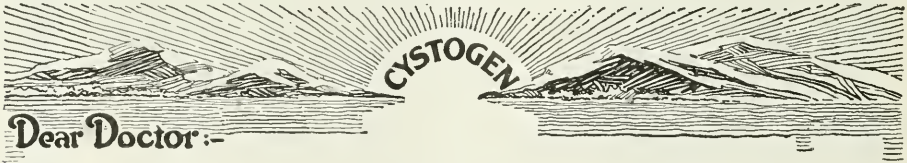

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PRESENT DAY ASPECTS OF LARYNGEAL TUBERCULOSIS.*

BY HUBERT ARROWSMITH, M. D.,
Brooklyn, N. Y.

In his inaugural address as first president of the American Laryngological Association, at its first annual meeting in 1879, Louis Elsberg enumerated by title all the laryngological publications of the American profession from the earliest times to that date, numbering 2,169. Up to 1861 or 1862, when the newly discovered laryngoscope began to be used by the progressive and enthusiastic few, among whom he was a pioneer, four papers had appeared which apparently had to do with tuberculosis of the upper air passages. From 1860 to 1879 twenty-two articles were published on this subject, mainly under the title of laryngeal or pharyngeal phthisis, or phthisical ulceration of various regions of the throat. At this same meeting Francke H. Bosworth presented a paper on Phthisical Ulceration of the Fauces. Since then papers dealing with every possible phase of tuberculous disease of the upper air tract have poured out in ever increasing volume until now an enumeration would involve more research than did Elsberg's compilation of the entire literature of American laryngology. I can offer nothing new or original, but I should like to present very cursorily our present day conception of laryngeal tuberculosis, particularly from the aspect of treatment, and the possibilities of treatment.

The attitude of the profession at large, both general practitioners and most laryngologists, toward tuberculous laryngeal disease, constitutes one of the greatest reproaches to which we have ever subjected ourselves in our history as medical men. If consumptive patients received a fraction of the attention that is given to those with typhoid fever or pneumonia by the internist, or to those with hay fever or ozena by the laryngologist, most of them could be saved. Fresh air, overfeeding, and then resignation to Providence is no more likely to succeed today than change of climate combined with codliver oil, the hypophosphites, and the same resignation two or three decades ago. This comment of course does not apply to clinicians who have made the study of general tuberculosis a definite part of their life work, nor to a small number of laryngologists who have striven earnestly to acquire some definite knowledge of the throat complications and their management.

As far as I am able to learn, in most of the sanatoriums, the private ones at all events, routine laryngeal treatment or even inspection, is not practised as a rule; indeed most of the private institutions decline patients who have obvious laryngeal involvement and at best the attention given them is purely perfunctory as is also the case when the patient is treated at home by the family physician. Getchel (1) discusses the plan of management of laryngeal patients in different State sanatoriums. In his personal experience at the Massachusetts State Sanatorium, he notes that the local condition usually goes hand in hand with the general. Though the symptoms are closely allied to those of syphilis, it should be remembered that the disease travels along the surface by contact in tuberculosis and local cleanliness thus becomes a more important part of the treatment. As to the operative treatment, he reminds us that the local manifestations are only part of a general disease and that their eradication by no means controls the process; that only in rare instances (sic) does an operation aid and then only in skilled hands. In sanatorium work he maintains that the routine throat examination and treatment can be better done as a part of general routine examinations by the resident physicians who by constant practice learn to recognize the finer shades of advancing tuberculosis better than the laryngologist can with no special training in this field. I have quoted Getchell thus fully because he has made several assertions of great importance which I wish to emphasize.

The mode of infection and the general pathology of laryngeal tuberculosis are those of tuberculous processes as a whole. It is conceded today that primary laryngeal tuberculosis probably never occurs and that most individuals who exhibit tuberculous manifestations in mature life have been infected in childhood or infancy, the infection remaining latent as a rule, until some adventitious stimulus spurs it into activity in any or all of its protean forms. On the other hand, the protracted presence of this latent focus may confer on its host a relative immunity to subsequent infections.

Park (2) in a paper read before the New York Academy of Medicine on Channels of Infection and Methods of Transmission of Tuberculosis, says: Two types of tubercle bacilli cause disease in man, the human type and the bovine type. The percentage of those infected by the one or the other depends on the use of raw milk in childhood and the amount of human tuberculosis that people come in contact with. He concludes that droplet infection is the most important method of transmission,

*Read before the American Laryngological Association, May 28-30, 1917.

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conceding at the same time the responsibility of inhaled dust and ingested water, as well as direct transmission. Weber showed that in fifteen minutes after the inhalation of dust, bacilli could be found on the mucous membrane of the lower part of the trachea, in the descending bronchi, and in the lung adjacent to them. These bacilli may cause a local infection of the lung or they may be transmitted to the bronchial lymph nodes. At any time the primary infection may be spread by the blood and cause secondary foci.

Tuberculosis of the larynx is the most common of all the grave diseases affecting that organ, far more so than cancer or syphilis. Different statistics give a varying relative frequency of laryngeal involvement in patients with pulmonary tuberculosis, between three and twenty-five per cent. Even in sanatoriums where laryngeal cases are supposedly excluded, about six per cent. of the patients are found to have laryngeal lesions (Laub). As the frequency with which the larynx is involved increases with the duration of the pulmonary disease, post mortem examinations show the larynx to be implicated in forty-eight to fifty-two per cent. of fatal cases. Clinically, while infrequent in the first stages of the disease, laryngeal lesions are encountered in seventy-two per cent. of third stage cases of pulmonary tuberculosis (3). Fetterolf (4) tabulated the gross post mortem findings in 100 patients dying of pulmonary tuberculosis: eighty-three per cent. showed macroscopic laryngeal involvement —eleven per cent. more than Laub's figures. He says that it is quite probable that the remaining seventeen per cent., or most of them, would show distinct microscopical lesions, which, while undoubtedly true, is of no special clinical importance.

Topographically the epiglottis showed lesions in fifty-nine per cent., the aryepiglottic folds in fifty-eight; the ventricular bands in fifty-two; the vocal cords in forty-nine; the arytenoid cartilages in fifty-seven, and the interarytenoid space in fifty-one. His classification of the pathological appearances seems most practical. He describes: 1, infiltration; 2, infiltration with superficial ulceration; 3, infiltration with deep ulceration; 4, superficial ulceration; 5, deep ulceration; 6, tuberculomata.

An unusual type, which belongs in the category of infiltration greatly exaggerated, is described by Theisen (5) under the title Hypertrophic Laryngeal Tuberculosis. He encountered one case and refers to a very few similar ones in the literature. His patient was also seen by Gleitsmann, a laryngologist of the widest experience, particularly as to tuberculosis, and from his comments it was unique in his experience. Curiously enough my only observation of such a condition was made possible by the courtesy of Doctor Theisen, who last October referred to me a young woman twenty-three years old who had been under his care during her stay in Albany last summer.

Case.—The patient had had symptoms referable to the larynx for eighteen months, mainly hoarseness and difficulty in swallowing, without pain. Tubercle bacilli had been found in her sputum. Wassermann tests had been negative. She was unusually well nourished. There was a small area of infiltration in her right apex which seemed to be entirely quiescent, there was no disturbance of temperature, and she felt perfectly well except for the discomfort in her thoat. There was an enormous symmetrical thickening of both arytenoids, aryepiglottic folds, and epiglottis, the last being slightly eroded on its under surface. The vocal cords could not be seen and the laryngeal aperture was greatly diminished in size. The mucosa was intact except as described, grayish red in color, and the whole surface was extremely resistant to palpation and not sensitive. I advised hospital treatment, which she declined, and I did not see her again for more than two months, when she returned and asked to be admitted to my service. The obstruction to swallowing had become much greater and she had decided inspiratory dyspnea. No ulceration could be seen. I did a tracheotomy as a matter of expediency and deeply incised the infiltrated arytenoids on the chance of finding pus, but without result; nor had she had any constitutional symptoms which indicated its presence. On the fifth day after the tracheotomy she died suddenly and inexplicably. There was no autopsy.

Presumably under the head of infiltration Fetterolf includes also those cases of perichondritis with abscess formation and so on. At St. Anthony's Hospital, Brooklyn, in an ever changing service of nearly 400 beds, where practically all the patients are in an advanced second or third stage of pulmonary tuberculosis, I should say that at least ninety per cent. of those seen during the last two years, totalling over 3,000, showed gross evidences of laryngeal involvement. Their condition may be appreciated by the fact that thirty per cent. die within one month of admission and a large fraction of that thirty per cent. within ten days. My experience covering thirty years, leads me to believe that the above is characteristic of the type of patient and period of disease that is sent to laryngologists by the general practitioner for treatment. Most laryngologists see very little early laryngeal tuberculosis. Many of them, perhaps most of them, decline to see it, so by the time these unfortunates are sent to those of us who deal with this disease, their laryngeal lesions have become the preponderating factor in their trouble and then it is rather late to do for them what we might have been able to do at an earlier period. In private practice I have had the opportunity to direct the general as well as the local treatment of a large number of consumptives from almost the inception of their sickness and I have never seen a frank laryngeal tuberculosis develop in a patient who came at an early period and who systematically and persistently followed a course of cleansing and sedative applications to his laryngeal and tracheal mucous membrane. As Getchell well said: "It should be remembered that the disease travels along the surface by contact in tuberculosis and local cleanliness thus becomes a more important part of the treatment," for prophylaxis is the most important part of the treatment.

From this experience I am convinced that the laryngeal lesions originate almost invariably from surface contamination and very rarely by way of the blood and lymph streams. The occurrence of infiltrations without discernible erosions of the mucosa is no argument against this mode of infection for it is well known that the bacilli have the power to penetrate intact mucus membranes. Unfortunately the old belief in the incurability of laryngeal tuberculosis still persists in the minds of many practitioners. This pessimism has been justified to a certain extent because local treatment commenced at the usual late period can not overcome the re-

sults of delay or be brilliantly successful, but modern methods even in late stages enable us to do a great deal to palliate the patient's sufferings even if the thought of cure cannot be entertained.

The matter of local prophylactic treatment has been spoken of. Intralaryngeal and intratracheal injections as most enthusiastically employed by the late Doctor Gleitsmann and by Thompson, of Cincinnati, are invaluable, for by them not only the larynx and trachea but also a considerable portion of the bronchial tree can be very satisfactorily medicated. Yankauer, by devising his medicator for the patient's use, has provided a means of making these injections almost as effectively as they can be administered by an expert laryngologist. The medicaments should be used in a bland vegetable oil vehicle; hydrocarbon oils have no place in the therapy of the air passages. The active constituents may be whatever is appropriate to the condition we wish to relieve. Lockard is enthusiastic in his recommendation of local applications of formalin in solutions of different strengths, from one half to ten per cent., but less irritating agents have seemed to me equally effective and more manageable.

It is perhaps superfluous to refer to the necessity for removing all obstructions to normal nasal respiration. Freudenthal warns against the removal of the tonsils in subjects of well marked pulmonary disease, which he fears may be followed by serious pulmonary hemorrhage. I have done it repeatedly without any such experience and with benefit to the patient. In an adult tonsilectomized by Dr. George Richards in my service at St. Peter's Hospital, we found what has been rare in my experience, true histological tubercle of the tonsil. This patient convalesced as promptly as usual. As to the drug therapy of actual and extensive laryngeal tuberculosis, palliation is all we can hope for. Hastings, of Los Angeles, and Bonime, of New York, are doing work in tuberculin therapy which promises much for the future. For the relief of pain from tubercular ulcerations, the local anesthetics, orthoform, propaesin, anesthesin, etc., have great value especially in the form of emulsions so extensively used by Freudenthal. Quinine and urea hydrochloride has recently been lauded for this purpose as well as for blocking the superior laryngeal nerve according to the method of Hoffmann; alcohol for this purpose seems preferable. Scarlet red has been extolled for its effect on tubercular ulcerations.

After the outburst of enthusiasm caused by the work of Heryng and Krause and Moritz Schmidt in the surgery of the tuberculous larynx, a reaction set in and laryngologists, with a few notable exceptions, abandoned most kinds of surgical attack. In America Gleitsmann, Lockard, and a few others continued to work along these lines conservatively and scored many triumphs. External surgery has not been successful, except that thyrotomy and tracheotomy may occasionally be permissible as emergency measures. With the old methods there were many reasons for failure except in the hands of the most expert operators. While fundamentally sound in its conception the old endolaryngeal surgery did not appeal to most men because of the difficulty of unimanual attack, the inadequacy of indirect illumination by reflected light, the instability of the operative field by reason of the weakness and hyperesthesia of most of the patients, suffering agonies which cocaine did not control.

With the advent of the direct laryngoscope and particularly the suspension laryngoscope, there has been presented to us in laryngeal surgery an opportunity quite equal to that of the general surgeon or the orthopedist. Our field is now as accessible as the external surface of the body and we can do quietly and leisurely whatever we have planned under good illumination in an immobile territory and with the free use of both hands.

We owe a great deal to Lockard for having so consistently insisted on epiglottidectomy as the rational treatment for epiglottidean tuberculosis. The fact that the epiglottis could be spared without trouble was first noted by Enos (6), of Brooklyn, who in 1865 reported that on autopsying a patient dead from consumption he found that the epiglottis had been completely destroyed by ulceration. He stated as a very remarkable fact that during her lifetime she had no difficulty in swallowing. Porter (7) was apparently the first operator in this country deliberately to remove the epiglottis, which he did for malignancy. Emil Mayer has substantiated his claim of having done the first complete removal of the epiglottis under suspension, also for malignancy and I venture to claim the first epiglottidectomy under suspension laryngoscopy for tuberculosis. Both these operations were done within a week of each other and I had no knowledge of Mayer's exploit.

Amputation of the epiglottis under these conditions is in striking contrast to the old indirect way of extirpating it by punch forceps. I make an incision on each side as far down as possible then seizing the free border with forceps the snare is pushed well down and the wire naturally follows the lines of incision when upward traction is made by the forceps; the entire epiglottis is removed down to its ligamentous attachment. In scores of epiglottidectomies I have seen very little reaction, but once any considerable bleeding, and almost universally immediate relief of dysphagia and odynophagia, in the absence of ulcerative conditions in other locations.

In superficial ulcerations the galvanocautery accurately used, as is possible only under direct exposure, leaves nothing to be desired. I cannot imagine how any one after a single experience would ever revert to chemical caustics. Deep ulceration wherever situated can be unerringly reached, thoroughly curetted, and cauterized. Deep puncture with a fine cautery point has a most happy effect on infiltrated areas and is the ideal way of attacking abscesses occurring with perichondritis. Tuberculomata and infiltrated masses may be cleanly excised in an orderly surgical way. I have been surprised at the very slight degree of reaction which follows these procedures; it seems less than would be expected in normal tissues and I have never encountered the postoperative disturbances reported by some observers.

Slight or moderately extensive lesions can surely

be cured by well considered surgical treatment with the aid of suspension exposure; the severer ones can be much ameliorated and the consumptive at least helped to die without the intolerable suffering which so often accompanies tuberculosis of the larynx. Suspension laryngoscopy has its greatest opportunity in this particular field. Its technic should be acquired by every one who assumes to treat diseases of the larynx.

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170 Clinton Street.

THE PRIMITIVE MEDICINE MAN'S VIRTUES.

His Knowledge and His Faith in Himself.

By Jonathan Wright, M. D.,
Pleasantville, N. Y.

(*Concluded from page 202.*)

Morality is the growth of wisdom from the experience we have gained in experimenting with social relations. We have to discount the social relations and the environment of primitive man and we have also, as much as we can, to discount our own environment. Doing this and getting down to pure professional ethics we find a wonderful similarity between the medicine man as he was and the medicine man as he is. Hear again how Livingstone (22) handles the relations he had with his dusky brother of the jungle when the patients were sick of complaints which seemed to surmount the skill of their own doctors. "I refrained from going to anyone unless his own doctor wished it or had given up the case. This led to my having a selection of the severer cases only, and prevented the doctors being offended at my taking their practice out of their hands. When attacked by fever myself, and wishing to ascertain what their practices were, I could safely intrust myself in their hands on account of their well known friendly feelings. . . . With the regular practitioners I always remained on the best terms by refraining from appearing to doubt their skill in the presence of their patients. Any explanation in private was thankfully received by them, and wrong treatment changed into something more reasonable with cordial good will if no one but the doctor and myself were present at the conversation." While Livingstone did not have a very high opinion of some of their therapy he was far from testifying that they were entirely devoid of skill in physic. From another writer, also of African practice, we learn that medicine men themselves do not always resort to magic or rely upon spirits and deities, and we may well believe that this is more frequent than the author permits us to infer, but we may be allowed to question the further statement that "they have a considerable knowledge of materia medica and treat diseases on purely scientific principles; that is to say they locate the seat of the disease and prescribe certain diet and medicines (11). Miss Werner (23) says: "Native doctors, both men and women, often have a very good knowledge of medicinal herbs." So numerous did she find these that there seemed some preventive for every ill likely to befall mankind. It cannot be imagined that the witch doctor ever really ignores or is ignorant of herbs in the treatment of the sick, however incidental they may seem in the apparently insignificant part they themselves play in the incantations and the ceremonials. In the heart of Africa, Stuhlmann (24) asserts, wizards, as such, play a great part in the treatment of disease, but they have, at least for the most part, also a knowledge of secret efficient remedies. In America (25) and in Persia (8) the wild tribes exhibit practically the same phenomenon.

It is repeatedly asserted that the savage rarely concerns himself with speculations as to the causes of things, but his critics entirely ignore his own conceptions of the causes of things. Into these he inquires sufficiently. Among the wild tribes in Mexico (12) "when a shaman is asked to cure a person of any complaint, real or imaginary, his first move is to find the cause of the trouble According to his opinion illness is brought on either by the wind or by sorcery. From the former kind of disease nobody dies, although the heart, the liver, or the head may be attacked; but the other kind is serious. Sorcerers may put snakes into the legs, and such animals as centipedes, toads, larvæ, scorpions, or even small bears into the body of some unfortunate person, and these disturbers have to be drawn out at once or else they will eat the sick man's heart. The shaman therefore first feels the patient all over, to find if something—in other words, the disease bringing animal—is moving underneath the skin. Illness may also result from small stones, or the spine of the *nopal* placed in the body by the same agency."

It must be observed here that the symptoms are some indication for diagnosis to the savage mind. but these symptoms are different from ours. "When a heathen negro is sick, the first thing done, just as in civilized lands, is to call the 'doctor,' who is to find out what is the particular kind of spirit that, by invading the patient's body, has caused the sickness. This diagnosis is not made by an examination and comparison of the physical and mental symptoms, but by drum, dance, frenzied song, mirror, fumes of drugs, consultation of relics, and conversation with the spirit itself. Next must be decided the ceremony particular to that spirit, and the vegetable and mineral substances supposed to be either pleasing or offensive to it. If all those cannot be obtained, the patient must die: the assumption probably being that some unknown person is antagonizing the 'doctor' with arts of sorcery" (26).

Now what is wrong with all this? "Evil spirits" is such a vague term with us we might make it cover a multitude of factors. The typhoid bacillus or the tubercle baciillus is more concrete. So the savage has the advantage in the way of causation, though doubtless there was many a medicine man who thought he had as clear an idea in his head with his etiology as we do with ours. The premises, however, we will not quarrel about—it is the gap

between them and the phenomena typhoid fever and tuberculosis, as diseases, which matters. We have every reason to believe we have filled that gap with a much better structure—though how incomplete it is we cannot guess—than primitive man did in his day, but we are handicapped, each of us by our theories, terribly the savage by his pantheism—not a little embarrassed we by our former purely bacterial conception of causation. I think now that we are in a position to meet the complaints of travelers of the medical profession or of religious faith who declare patients do not detail their symptoms. Why should they detail the symptoms, the slave of the bacterial etiology of disease, of the "crises" and "lyses," even those the Galenic school asks for? They are ready enough to do what they can for the medical attendant along pantheistic lines. The Reverend Mr. Weeks (2) after experience with the Congo cannibals said: "One of the greatest difficulties we encounter on the Congo is that of diagnosing a disease. The natives have never been in the habit of describing their symptoms, consequently when we commence medical work in any new district we are at a great disadvantage, and it takes long training before the people will clearly state the nature of their pains, or anything that will really help us to diagnose their complaints. While in the language we find the names of a large number of diseases, yet it is very poor in words describing symptoms, and this paucity of symptom words arises from the fact that for centuries the witch doctors in their own interests have fostered the belief that complaints are caused by evil spirits which they alone can drive out of them. Not only is there this lack of words describing symptoms, but there is a reticence on the part of the patient to explain his pain, etc., as he thinks that the 'doctor' who has any pretension to healing a person should certainly be able to discover what is wrong. Their witch doctors do not closely question their patients, but at once proceed to the cure; why, therefore, should the white man make so many inquiries?"

The reporter ignores the fact that perhaps he asked him about the nature and time of the pain in his head or the location of the abdominal pain, or whether he felt chilly first and then hot, or how his appetite was. What had all that to do with the devils that were seeking his life? Much more to the point was the conduct of the Abipone practitioner, which Dobrizhoffer (27) recounts with disgust, when he bustled in: "At his first coming, the physician overwhelms the sick man with a hundred questions: 'Where were you yesterday?' says he, 'What roads did you tread? Did you overturn the jug, and spill the drink prepared from maize? What? Have you imprudently given the flesh of a tortoise, stag, or boar, to be devoured by dogs?' Should the sick man confess to having done any of these things, 'It is well,' replies the physician, 'we have discovered the cause of your disorder. The soul of that beast having entered your body torments you even now, and is, alas! the origin of the pains you feel." The native doctors detail the symptoms to their Christian missionary medicine man consultants and they seem indeed very vague when, as among the Cherokees, (19) "their description of symptoms generally resolves itself into a statement that the patient has had bad dreams, looks black around the eyes, or feels tired, while the disease is assigned such names as 'when they dream of snakes,' 'when they dream of fish,' 'when ghosts trouble them,' 'when something is making something else eat them,' or 'when the food is changed,' i. e. when a witch causes it to sprout and grow in the body of the patient or transforms it into a lizard, frog, or sharpened stick." Or "as the Samoans (6) supposed diseases to be occasioned by the wrath of some particular deity, their principal desire, in any difficult case, was not for medicine, but to ascertain the cause of the calamity." There seems then plenty of symptoms sought. Nothing could be more modern. Our chief concern today is etiology. Sometimes, that once found, be it arteriosclerosis or dangerous devil inside, one knows how to proceed; sometimes not. Life is short, art long, and the end uncertain!

The question is very apt to arise and it is occasionally formulated by the reporters of primitive man's actions, as to how much medicine the savage medicine man knows. One must move with caution in forming an opinion of all matter pertaining to primitive man's mentality and psychology, but we must set up some standard of our own. From this he may vary. On the other hand one hundred and fifty years ago, Father Dobrizhoffer, whom we have noted anathematizing the doctor of the South American Indians, thus describes some practices which I suspect were introduced by the Spaniards themselves. At least one found a warm advocate in the good father. A woman was sorely wounded, and the white men thought she would surely die. "Mixed with the crowd came a juggler physician who gave the husband of the wounded woman a horn, desiring him to discharge his urine into it, and was immediately and plentifully obeyed. He gave the warm urine to the woman to drink, who made no hesitation, but swallowed it to the last drop. The juggling Hippocrates then turned to my companion and said, 'Do you know why I prescribed fresh urine? In order that the wounded woman may vomit up the blood trickling from the wound to the inmost parts of the body, which would otherwise putrefy, and cause the lungs and other parts to putrefy also.' The event verified his prediction. The woman was cleared by vomiting," and she evidently recovered. "The surgeons of our country will doubtless laugh at the application of hen's fat"—they need not; it was very orthodox treatment among Arabian physicians in the Middle Ages—"and perhaps question its efficacy in curing wounds; let them laugh, deride, doubt, and despise, with my hearty good will. I confidently oppose the experience of my own eyes to their doubts and laughter." By its means he recovered from an arrow wound. Later the white man says: "It would be endless to relate all the cures that have been worked with hen's fat" (27). Warm urine as well as hen's fat was well known in European practice before Columbus discovered America, but the former, at least, seems to have been an indigenous remedial agent in the New World. It was the hen's fat, however,

which the missionary lauded though he did not despise the other, but warmly recommended it also. Evidently for modern readers we must seek some other standard by means of which to allow them to judge the question of empirical medicine, for it is hardly worth our while more than to remark that little or no knowledge of the structure and internal functions of the human body were known until long after the use of written historical records.

In later times, 1911, we find a publication dealing with these same Indians we have heard of from Dobrizhoffer, or their near neighbors. Among the Lengua Indians of the Paraguayan Chaco the traveler (28) is moved to say: "There is no doubt that these witch doctors have much more medical knowledge than they are generally credited with, and this incredulity as to their knowledge is owing, I think, to the fact that it is so mixed up with superstition. But it would require a medical man to study their methods, in order to estimate the real extent of their knowledge."

Very little has been done by the competent medical man to study the herbs and the medicines of primitive man in such a way as to identify them and to compare them with those in use in civilized countries. Such study as has been made has only led to discouragement. To continue making use of information drawn from the civilizations the Spaniards destroyed in America, we have ample evidence, whether or not the Mexican medicine and surgery was more in accord with our own than the Spanish, that the latter, being the conquerors, sometimes viewed with their customary arrogance and ridicule a system of medicine which was slightly different from, but in our ideas very little inferior to, European medicine at that time. Occasionally the downtrodden race, even in medical ranks, seems to have turned upon their tormentors.

In an edition of De Sahagún (29) the editor relates an anecdote—I do not know with what authority—which would illustrate this: There was a certain drug, the smelling of which they say caused nosebleed. The editor goes on to say: "A long time after the conquest they continued the use of these things, and even at the present there is preserved the memory of a celebrated medical man, a certain quack called Doctor Indio, of the Valladolid of Michoacan, who humiliated and confounded the pride of the chief physician of Mexico when he examined him in order to punish him for some empirical charlatanry and cure. The latter asked certain of the officers to smell a plant which produced profuse nosebleed, and then asked them if they would not try to stop it. But not being able to do so he gave them the powder of a certain other plant with which the flow of blood was stanched. 'I have here,' he told them, 'shown what my knowledge is of medicine, and the manner in which I cure the diseases of those who call me.'"

Garcilasso de la Vega (30) speaks of the knowledge of the Incas of his time thus: "The natural secrets of these things were not told me, nor did I make any inquiries, but I saw these practices in operation. They knew nothing of feeling the pulse, and less about looking at the urine. They recognized a fever by the heightened color of the body; and their purges and bleedings were more as preventives than as helps to recovery. When they had recognized that the disease was actually in full force, they gave no medicine whatever, they left nature to work its own cure, and merely regulated the diet. They did not understand the use of clysters, nor the application of plasters, nor ointments, except very few composed of very common things. The poor people treated diseases in a way differing little from the conduct of beasts." Their idea of the value of medicines seems to have been much in accord with modern doctrine. The repeated comment of the author on the fact that these benighted people were unacquainted with diagnosis of disease by means of urine inspection plainly indicated on how low a level he imagined them in medical matters, and it reveals his standard.

Ovalle (31), who died in 1651, says of the natives of Chile, the "doctors are not only esteemed by the Indians, but by the Spaniards themselves, who have recourse to them in the greatest extremities when the disease presses most." Now this may be so, but when the generous Spaniard tells the grounds on which this respect was based, our twentieth century prejudices destroy the effect. For instance, a man left for dead was nevertheless given medicine by a native, "the father resorting to the place where they laid him, to see if he was dead, he was found not only alive, but out of danger, and the sheet all full of blood, which the herb had caused him to void through the pores of his body, so as he remained perfectly well in a little time." In Australia (32) they also, according to a comparatively recent standard, excite the commendation of our orthodox doctors. "Matah suffered a good deal with constant pain in one knee; he was quite lame from it. He showed it to Bootha [a native doctress] one day. She sang a song to her spirits, then said: 'Too muchee water there; you steam him, put him on hot rag; you drink plenty cold water—all lite dat go.' As it happened a medical man was passing a few days afterward with an insurance agent. Matah consulted him. 'Hum! yes, yes, hot fomentations to the place affected, poultices, a cooling draught. There's a stoppage of fluid at the knee joint which must be dispersed.' I thought Bootha ought to have been called in consultation." The same author relates how by means of incantation wax was removed from the liver by Bootha during the night, and the patient rapidly recovered, owing, it was claimed by the witch to her subjugation of some vagrant disease spirits. These stories are not told by a black fellow, but by a white man who expects to be believed. Where was the truth as to "real knowledge"? The hot embrocations for water on the knee approved by the white medical man or the incantation and spirit story—told as a joke? The fact of the matter is that while most travelers testify to their belief that the savage knew much of empirical medicine of an effectual kind, it is the lack of a standard by which to measure its value which causes us trouble. At every epoch, nay almost in every decade, civilized man changes it to some extent, and as the records of the study of primitive man are spread over a number of generations now,

it is difficult to know in our own terms just what the reporters mean when they say the savages had considerable "real knowledge" of therapy. This may sound like irony, but is not meant for it.

Much more satisfactory is the testimony as to the belief of the medicine man in himself. I do not intend to discuss it, but it will be well for the reader, according to his own temperament, to consider whether the modern medicine man believes in all his practices, therapeutical, medical, surgical. "If you ask me frankly whether I think these African witch doctors believe in themselves, I think I must say yes; or perhaps it would be safer to say they believe in the theory they work by, for of that there can be very little doubt. I do not fancy they ever claim invincible power over disease; they do their best according to their lights. It would be difficult to see why they should doubt their own methods, because, remember, all their patients do not die; the majority recover" (13b). I may be permitted to remark that this is what allows the medical man to exist, and this explains why it is so difficult to set up a standard for success in empirical therapy from modern practice. The Reverend Mr. Weeks, speaking of the same locality, says: "I think many of the medicine men thoroughly believe in themselves; and even those who assert that they see spirits or have performed such wonders as living under the water for seven days or making their spear shake and talk, relate the incident so often that they come to believe that they really did it. Many of the people before we went there had no faith in the medicine men; but they were afraid to oppose or ridicule them for fear of being charged with witchcraft, so they pretended to accept all that was said and done by them. Our presence inspired many with the courage to test the witch doctors, and finding them frauds they turned from them with contempt" (2). We remember the testimony of other missionaries who bitterly complained that their patients and converts when very sick escaped to the bush and the witch doctor and recovered. Most of those who report their contempt for the wild man's credulity suffer from similar charges on their native heath. Skepticism is always commendable, as long as it does not paralyze action, but skepticism concerning another's belief and implicit credulity as to one's own does not commend itself to us.

Another missionary (9), speaking of the Indian doctors of the far northwest America, says: "One might be curious to know whether they themselves believe in their supernatural powers or merely carry on a system of imposition. I believe that some are really convinced that they can do something at least to relieve the sick." It seems quite natural they should believe in themselves as devoutly as the white medical man does in himself. Another missionary (33) says that the South African "herbalists have acquired considerable skill in treating common ailments." Schoolcraft (16) says of the medicine man of our Indians: "He has a general knowledge of the most common disorders of the stomach and bowels. He knows the value of the most unremitting care and attention to the patient who is committed to his hands; and on this, so far as it relates to topical cases his success doubtless often depends," and then he, writing about the middle of the last century, commends his practice of bleeding in inflammation. "There is known to them," he says, "a forest materia medica and a pathology which regulates the practice."

From Australia (34) we learn the following: The Koonkie will not "confess to his trickery, and, indeed, from constant practice, at last deludes himself into a belief in his skillful surgery, which all the other natives have implicit faith in. And, indeed, the force of imagination is so strong in some cases that I have seen a native quite ill actually cry for the Koonkie, who, after his humbugging, appeared quite recovered. Should the Koonkie fail in his effort to relieve the sick, he is prepared with a ready excuse—some Koonkie of another tribe, possessing more skill, has stopped his power. When a Koonkie is ill he calls in the aid of another Koonkie to cure him." There can scarcely be a stronger test of sincerity than that.

Doctor Tylor, from whom ethnology has had the benefit of more shrewd and common sense discourse than from any other writer, is quoted by Crooke (35) in discussing this question for the tribes of northern India: "Are all these Ojhas and Baigas conscious hypocrites and swindlers? Doctor Tylor shrewdly remarks that 'the sorcerer generally learns his time honored profession in good faith, and retains the belief in it more or less from first to last. At once dupe and cheat, he combines the energy of a believer with the cunning of a hypocrite.' This coincides with the experience of most competent Indian observers. No one who consults a Syana and observes the confident way in which he asserts his mystic power, can doubt that he at least believes to a large extent in the sacredness of his mission. Captain Samuells, who repeatedly witnessed these performances, distinctly asserts that it is a mistake to suppose that there is always intentional deception."

Every mature modern physician will decide entirely, as he is governed by the interpretation his temperament places upon his own faith, whether this presentation of the faith of primitive man in himself differs from reality today. I will conclude this subject with a quotation from Miss Kingsley of an African story (13a): "There was a very great fetish doctor there, universally admired and trusted, who lived out on the land at the mouth of the Great River. One day he himself fell sick, and he made ju-ju against the sickness; but it held on, and he grew worse. He made more ju-ju of greater power, but again in vain, and then he made the greatest ju-ju man can make, and it availed nought, and he knew he was dying; and so, with his remaining strength, he broke up and dishonored and destroyed all the fetishes in which the spirits lived, and cast them out into the surf and died like a man." This admirable story cannot be too deeply pondered. It shows the brotherhood of primitive and civilized man. What medical man of middle age in our civilized life cannot match it out of his own experience? It must be confessed, however, that skepticism is too far advanced with the white layman to find a ready counterpart for what fol-

lows. "Then horror came upon the people when they knew he had done this, and they burnt his house and all things belonging to him, and cried upon the spirits not to forsake them, not to lay this one man's deadly sin at their doors."

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DIAGNOSIS OF EARLY CANCER OF THE STOMACH.*

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It is practically and universally agreed that surgery offers the only possibility of cure of cancer. The only cases in which life is maintained years after are those in which malignant tissue has been totally removed. This is only possible when the disease is not advanced and is definitely local. Thus it is essential that a diagnosis be made as early in the course of the disease as possible.

Considerable criticism has arisen from surgeons that earlier diagnoses are not being made. This is not entirely justified because cancer begins as a small nidus and is not always preceded by an ulcer or any status of indigestion, and it is generally not until marked advance has taken place that the person comes under observation. The writer has lately seen three such cases in practicising physicians; if they are encountered in members of the profession, how can one expect more watchfulness from the laity? In one of my cases, the man had a large practice and was a surgical leader in his community and abreast with medical progress. He believed he was run down from work and went away for a rest and then took tonics because his rest had not benefited him and finally quinine, because he thought he had malaria. He happened to put his hand on his epigastrium one night and felt to his surprise a large mass—almost the entire stomach being involved. The criticism of delayed diagnosis is unfair, particularly when this has been met with in more than one instance. If it were not for the discharge, many uterine cancer cases would not come under observation, and the same is true with lumps in cancer of the breast and elsewhere.

*Read before the Harlem Medical Association, May 2, 1917.

There is, however, another side to this matter. Same cases that I have seen have been temporized with too long without a substantial diagnosis by some general practitioner. It sounds like a cheap cry of alarm, and one far too sweeping as a general policy for the general practitioner, to say that every case of "indigestion" in a person of cancer age should be diagnosed away from cancer if the symptoms have lasted a few weeks, even though they had apparently responded to treatment. Yet this disease is so insidious that it is impossible to differentiate unless one has made a policy of diagnosing away from cancer rather than trying too late to explain a stationary or downward course of the patient's health. A well schooled clinician recognizes what may be called an elasticity in diseases and conditions that are not progressive to fatality —a something that, while it may apparently be absent, nevertheless is an asset that can be built upon to restore health. This does not exist in cases of cancer and whatever the diagnosis of the condition or cause of the indigestion may be or whatever the treatment and the immediate result obtained, the foundation stones upon which health might be built are missing. It is only a question of time for this to be manifested to even the most casual observer. Because of the propaganda against cancer, and Bloodgood deserves much credit for recent work in this, and also a broadening interest in abdominal conditions, general practitioners everywhere are making better diagnoses, and not a few are well abreast of the subject. It is a very encouraging sign that this type of general practitioner is becoming more and more numerous. It augurs well for the future of American medicine and respect for the profession.

In a case of early cancer of the stomach, the diagnosis as far as indication for surgery is concerned is usually not difficult. Sufficient intelligent investigation is the most necessary factor in the vast majority of instances. Go after the diagnosis directly and diagnose away from cancer, rather than begin with a hazy idea of all of the abdominal troubles. It seems extreme, but it is wisest to suspect cancer in every patient over thirty-five years of age in whom symptoms have persisted for a few weeks. Take a positive attitude as a basis of departure. In Anglo-Saxon countries an arrested person is innocent of a crime and must be proved guilty by prosecuting authorities; in France he is judged guilty when arrested and must prove his innocence. This is somewhat analogous to what I believe should be the point of departure in diagnosis of cancer.

It is stated that in only two per cent. of chronic ulcer cases does clinical cancer develop. The pathological reports from the Mayo Clinic indicate that this figure is far too low. Hence a large number of ulcers with microscopic findings suggesting malignancy never develop clinically into what we understand as cancer. Judging from histories of cancer cases I have seen, in the vast majority there is no history of ulcer. Of course, so called precancerous lesions of the stomach may have been present without symptoms, but this is a point yet to be proved as far as gastric cancer is concerned. Our reasoning for the premises commonly taken here is

based upon what we know of cancer following chronic lesions in visible parts of the body, and considering all lesions the number of cancer cases are few. I cannot prove the contrary of Mayo's

Fig. 1.—Looking into the pylorus from the stomach side. The darkness of the lower half of specimen is due to blood in the mucous membrane of clamp tramma. Arrow points to greatest thickness of growth, on each side of which specimens were cut for microscopical examination. No macroscopical evidence of cancer in the mucous membrane. The growth involved only the lower left quadrant.

contention, except in a gross clinical way, so I still feel that Ashoff's beliefs are best. The question why in one person cancer develops from a lesion and does not in another has yet to be answered. To the clinician there is a susceptibility to this disease in some persons, and this susceptibility when present may even influence the character of the neoplasm primarily and the course of it both locally and generally. It seems true that the vast majority of the people who have suspicious histories of chronic ulcers are resistant to cancer and do not acquire it, no matter how long a gastric ulcer had existed or how much neglected. We all agree that surgery is the proper procedure in all persistent ulcers, and that the effort should continue to render possible their cure by surgery, both from the standpoint of relief of symptoms and because in a small number of the whole they are precancerous lesions. One cannot tell, however, at the time of examination of old ulcers which person is susceptible to malignant disease and which is not. To feel that all or only one half of the unhealed ulcers are or will become true cancers, is reaching far into the realm of supposition, for the opposite has been proved by clinical facts. It is hoped that in the future some laboratory test for susceptibility to cancer will be found, such a test as valuable for cancer as is the Wassermann, luetin, or spinal fluid test for syphilis. If only a test for susceptibility were available, much of the mystery in the ulcer cancer problem and in cancer elsewhere in the body would be tremendously cleared up. If cancer were an infective condition, it is probable that its cause would have become known with the development of ultramicroscopic methods and a test discovered. Practically all of the most important diseases of man are now in the class of infections, and laboratory procedures for their diagnoses are based upon the fact that a definite infection exists.

Up to three years ago 320 cases of gastric cancer had been examined by me. In these a history strongly or mildly suggesting ulcer was met in sixteen cases, or about five per cent. Of these cases 287 were deemed good or fair enough for recovery from the immediate effects of exploratory incision, although after a negative Wassermann, operation was advised in all. It was advised also with a positive Wassermann, providing a short course of antisyphilitic treatment had not helped. One can never tell even in what seems to be a late case whether an operation might not be of some assistance, and thus the best plan is to do at least an exploration in all. Of the 287 cases, 192 were operated in, and in the ninety-five remaining, there were two factors against it. In sixty-four, physicians advised the patient against operation—a most unreasonable and unwarranted attitude for any of us to take positively—the patients themselves declining operation in the remainder. Of the 192, in fact in 279 of the whole, all are dead as far as I know, my records being complete in 259 cases; the remaining twenty I was not able to trace. Of the whole number there were eighty-one cases in which I felt that surgery offered distinct possibilities of benefit, seventy having been operated in. It is a discouraging record for any conscientious physician that after all this work all the patients are dead, although in many a prospect of distinct benefits and lengthening of life had been looked for. In but eight cases was the possibility of complete cure marked, and the deductions from these eight are the special occasion for this article. Extensive excision was done in every one of these patients, in four with the removal of glands. Two of the latter had return of the growth locally in the stomach;

Fig. 2.—Posterior wall of the stomach, cut stomach to the left. lesser curvature to right, greater curvature above. Duodenum upper right apex. Arrow points to site of growth. No evidence of peritoneal involvement, glands, metastases, etc.

one is dying at present, and the other will not live much longer. At any rate, they all lived practically three years after the diagnosis and operation and

were useful members of society during most of that time, a result I feel would have been impossible unless operation had been done. Of the six remaining, one now has an extensive carcinosis of the abdomen, and will die shortly, and another had a cancerous breast removed three months ago but is

Fig. 3.—Carcinoma cells invading mucous membrane and submucous tissue.

now apparently quite well. Four are today well, and these, too, were primary cancer cases, not questionable ulcers.

The early examination in these eight cases showed obstruction at the pylorus and definite gastric symptoms due to the persistent obstruction and not to the cancer in any way. Of course, the obstruction was due to cancer, but the point I wish to make is that they came under observation for symptoms due entirely to the pyloric obstruction. The laboratory findings with test meal examinations proved this in all, and the x ray in all but one. In one, traces of blood in very small amounts were found frequently in test meal and stool. In the rest this was negative. Hydrochloric acid was present in all but one, two having a distinct hyperacidity. In the one in which acid was not found, there were traces of organic acid and a very occasional Boas-Oppler bacilli. In one of the hyperacid cases I had the opportunity to do three extractions in eleven days, suspecting, after the x ray had suggested the diagnosis, that the normal acid content would run down, but it did not. In all there were more than five hour delays of mixed meals; in five it was over twelve hours. The Wolf-Junghaus test was made in seven, was negative in six, and questionable in one. None had Saxyl-Solomon urine. Thus it is plain that so far as the history and the laboratory examination were concerned, only pyloric obstruction could be diagnosed.

The x ray was more definite in all but one. In seven instances it showed a distinct defect in the anatomy and over six hour stagnation. Its greatest value to me is in the defects shown; I am firmly convinced that the direct method of x ray diagnosis is dependable. In these instances, encroachment on the lumen defects, definite tenderness to pressure upon these areas, peristaltic wave jump areas, and deformities were manifested. All but one had pyloric obstruction of permanent kinds, confirming the laboratory findings. The value of the x ray was in confirming the laboratory method in diagnosing stagnation. What the laboratory could not show was the anatomical defects, and because of this, the x ray method takes precedence over the laboratory, although the latter should not be neglected. In one case as normal a stomach as was ever observed by x ray was seen—no defects, no jumps, no anything—yet the history was suspicious. The laboratory was more valuable here than the x ray in that blood was demonstrated in the test meal and stool.

Most important of all, however, is the history. In the play of the different forces contending for recognition and supremacy in the advance of medical science, this matter is receiving less attention. While the laboratory and x ray offer in this, as well as in many subjects in medicine, most valuable service as a method of diagnosis, neither one is complete in itself. There are services in the completion of a diagnosis that they, and only they, can give—additional facts on which to base a definite decision. The history, however, should take precedence. It is unfortunate that the easiest and the least time and expense consuming method of the three is so slightly regarded by an apparently constantly growing number of our colleagues. In every one of these cases details in the history, simple physical examination, or both suggested an obstruction of the pylorus, one that had not existed long, but was permanent in type and mildly affecting the general health. While the x ray usually showed the defect,

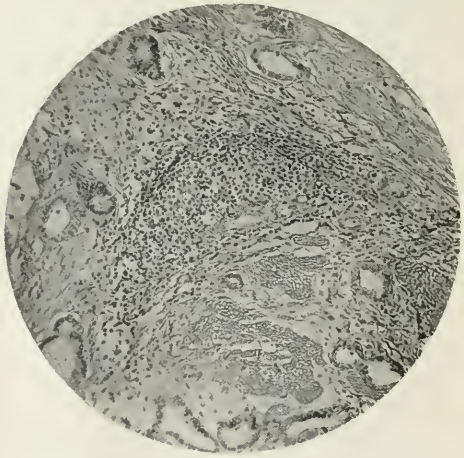

Fig. 4.—Collection of carcinoma cells in deeper and denser portion of the organ.

the history was more suggestive of its nature than either the x ray or the laboratory. In the history one deals with an individual and that means dealing with disease far more directly and dispassionately

than the two indirect methods of laboratory and x ray. Manifestly, the most direct method is to operate, but the victims of the early manifestations of disease have not got operation primarily in mind. This must always be suggested by the examiner and reasoned out with the patient. It is at this point that the history is important, because this is the foundation of later symptoms. Symptoms bring the case under observation. Inasmuch as the field of abdominal diagnosis is large and the number of cases of cancer is comparatively small, histories are very important. If I were deprived of any two methods in the four of history and physical examination, x ray, laboratory, and operation, I would prefer the first and second. The best service, however, is to be had in diagnosis of early cancer by all four, in which history is of the first importance. I state this after considerable experience with all. Why histories are being neglected in abdominal work is beyond me.

I offer a division of the early gastric cancer cases

FIG. 5.—Röntgenogram showing defect at pylorus, moderate dilatation of stomach, normal exit. Arrow points to defect. Plate made by Dr. I. Seth Hirsch.

into two main groups: those which are not situated at the orifices and those which are. In those not situated at the orifice practically none, excepting possibly the few ulcer cases, will be diagnosed early enough for cure. They have no local symptoms until a large part of the stomach is diseased, and then the symptoms are general as well as local, as in all late cases. A few of these patients, however, come under observation fairly early and they should be operated upon, but in by far the larger number they do not come to any medical man until marked extension of disease is present. The second type are those at the orifices, pylorus, or cardia, and these are more fortunate. Suggestive and pronounced subjective symptoms come on quickly and are often distinct enough to see in a history, however casually given: the slight nausea, coming on perhaps only late in the day; the bitter taste suggestive of a stagnant stomach; the occasional vomiting of foods retained from the previous meal or even before this, although this is a late symptom; the relaxed stomach, and possibly its visible peristalsis if sufficient tone is still present and the obstruction is distinct enough. With these are also the danger signals of anorexia and perhaps aversion to meat; neither are pronounced in the early case and only suggestively present. All of these serve as beacons on the trail, although the lights may be only barely visible in the darkness. When the lesion is at the pylorus, distress is felt in the median line and is made worse by taking food, there is tenderness on pressure, perhaps spasm, and an unexplainable weakness becomes manifest and gradually increases. When the growth is at the cardia, there are difficulty in swallowing never before present and attendant esophageal distress which may be minor in nature, yet definitely present.

If an early case has come under medical observation, why wait until anorexia, vomiting of stagnant contents, loss of weight and strength, anemia, cachexia, a mass, and so forth are present? Recourse should be taken promptly to the x ray and the laboratory long before these manifestations set in, and then a frank statement to the surgeon and to the patient of your beliefs should be made. In all the cases I have diagnosed early, I believe it was possible for anyone who is watching and careful in his work to recognize the condition. It is the obstruction, or delay of total stomach contents in fixed time, that I wish to emphasize particularly, since all of my early cases had it. I will report only one case recently seen in which credit goes distinctly to a general practitioner of medicine and gynecology, Dr. M. O. Magid, and a röntgenologist, Dr. I. S. Hirsch, for their skill. I was simply the consultant asked to weigh the facts considering indication for surgery. I feel that they deserve far more credit than myself, even though I specified the nature of the growth. The case presents some of the points brought out in this article, and serves somewhat as a summary.

CASE.—A man, sixty-four years of age, was brought to me on December 5, 1916. There was nothing of importance in his family or personal history except that he had been practically well up to his present illness, which began about three months before. His first sensations were those of indefinite pain in the epigastrium. These were not acute, but were always intensified by the taking of meals. He said that at times it might be characterized as distress, but he thought that a slight degree of pain expressed the sensation best. In the course of a few weeks he became fearful of taking foods and noticed that solid foods distressed him, while soft and fluid ones were comfortable. About three weeks from the time the pain started he was distressed by even fluid foods. After a few days of this the pain subsided so that there was only a slight degree of distress, and with this he began to partake of foods of all kinds. From the beginning there was a definite degree of anorexia which did not subside when the gastric distress lessened, although he felt that it was less than during the first three weeks. At the present time he is feeling quite well except for a degree of weakness. This is indefinite, although bona fide and not a neurological condition.

On examination, the man was slightly anemic, and thought he had lost about six pounds through the entire illness. There was no evidence of cachexia. His abdomen was large and there was a spasm, not very marked, in the epigastrium on the right side. This on percussion corresponded to the pyloric end of the stomach, and it was difficult to say whether a mass was palpable below it or not. If there was a mass it was very small; the large size of the abdomen and the spasm made it impossible to be sure.

The most probable diagnosis was early carcinoma at the pyloric end of the stomach. A triple test meal extracted the same morning for twelve, six, and one hour endurance showed 190 c.c. stagnant return, a free HCl of 13°, a combined HCl of 8°, and a total acidity of 22°. Lactic acid was present in small amounts, likewise blood and an occasional Boas-Oppler bacillus. Diagnosis still early carcinoma of the stomach, and operation advised.

Here was a man over sixty years of age who had always been well up to the present illness, never having had any indigestion. Three months ago a bona fide digestive trouble set in with pain and distress, and anorexia was a distinct symptom running through its course up to the present. The distress is of a selective food type, which, according to the physical character of the foods taken, point to a pyloric obstruction. The cessation of pain suggests a carcinoma, because carcinomas in the stomach commonly do this in the beginning of their history. During the whole illness there was a gradual loss of strength and weight, and the test meal showed a moderate degree of gastric stagnation, a lowered hydrochloric acid acidity, some blood, and an occasional Boas-Oppler bacilli. The diagnosis of a new growth at the pyloric end of the stomach, it seems to me, was easy, and it is perfectly manifest that this in all probability was cancer and a good case for operation.

Three days afterward in the Polyclinic Hospital a partial gastrectomy was done by Dr. A. Sturmdof. There was a hard mass, small in size, directly inside the pylorus. It was situated on the posterior wall and no evidence of its nature was observed, metastases, etc. Its character was so hard, however, that carcinoma was the most practical pathology. At the time of the operation I saw the x ray plate for the first time which is reproduced herewith. Examination of the sections shows that the growth was a primary carcinoma.

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DIAGNOSTIC TEETH.*

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There is abundant evidence that the value of the teeth as an aid in the diagnosis of certain morbid states, notably bone and joint lesions, is very much underrated. There have come under the writer's observation during the last few years numerous cases of inherited syphilis which had undergone long periods of treatment based upon incorrect diagnoses and in which inspection of the teeth with an intelligent interpretation of the findings would have given a clue to the true pathology and shortened immeasurably the period of invalidism. If errors are of frequent occurrence in the field of orthopedic surgery, where more or less constant vigilance is exercised for the appearance of syphilitic manifestations, may they not exist with like frequency in other branches of medicine? This is entirely probable for the very good reason that anomalies of the teeth are usually looked upon as the special charge of the dental surgeon, their clinical significance being little understood.

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The knowledge of the average medical man regarding the relationship between the teeth and hereditary syphilis stops at the dictum of Jonathan Hutchinson who, even in his later writings, maintained that the only dental stigma pathognomonic of syphilis was notched central incisors, and that to consider other malformations as indices of hereditary taint was to open the door of diagnostic error. Syphilographers of the French and Italian schools have in the last two decades added much to the observations of Hutchinson and it is now recognized that there are at least three dental malformations of equal importance to the classical Hutchinson teeth. Not only that, but there are also entitled to consideration many other distortions both in form and arrangement of the teeth which occur more frequently in inherited syphilis than in any other disease.

That the abnormal tooth formations seen in hereditary syphilis are not merely an expression of a general dystrophy, but are more often the result of local inflammatory disturbance, due to the immediate presence of the spirochetes, is suggested by the fact that the organisms have been recovered from the dental structures of the dead fetus. It may be argued that morbid processes other than syphilis could produce anomalies similar to those found in lues, and the contention would be incontrovertible, except that to produce the variations in form and arrangement and even the suppression of the dental units considered indicative of syphilis it is necessary that the distorting agent shall be active over a relatively long period of time embracing the last five months of fetal life and the first few of the child's existence. In other words, its activity must correspond, not to the period of eruption of the teeth, but to the time during which they are undergoing calcification. The first permanent molars begin to dentify during the sixth month of intrauterine life and the incisors and canines during the first three months after birth. It has been stated by some writers that tuberculosis and rickets are responsible for many of the common dental defects, but it is difficult to see wherein the course of these maladies even approximates the conditions necessary to produce the lesions under consideration, and neither of them could satisfactorily explain the localized anomalies which occur without other evidence of disease. More than that, after careful examination of a large number of children in the Paris hospitals

Fig. 1.—Widely spaced upper central incisors in a syphilitic boy, who also has a saddle nose, corneal opacity of left eye, and defective hearing, and is mentally subnormal.

Fournier and Hallopeau have expressed the opinion that tooth erosions are not frequently produced by either tuberculosis or rickets, and this seems to be the belief of many observers, despite some evidence to the contrary.

Fig. 2.—Widely spaced upper central incisors. Syphilitic manifestations present since childhood cleared up under mixed treatment. Two sisters have similar teeth.

The recognized pathognomonic dental stigmata are the notched upper central incisors of Hutchinson; cuspal erosions of the first permanent molars, recognition of which is credited to Moon, of London; multiple and systematic dystrophies of the permanent teeth, and multiple dystrophies of the deciduous teeth described by Cavallaro. These imperfections Fournier, Hallopeau, Darier, Cavallaro, and others agree are produced by syphilis alone, although there are some dissenting opinions as to the infallibility of their diagnostic import In addition there are other anomalies of form and arrangement of the teeth frequently seen in inherited syphilis which may have an important bearing on clinical diagnosis in both medicine and surgery. Fournier estimates that of such conditions eighty per cent. are produced by syphilis and the balance by other causes which may be unknown, but from which syphilis cannot be definitely excluded.

One of the common malformations is the absence of dental units which may be so extensive as to produce an entirely toothless jaw. There are also symmetrical erosions of various kinds, striking irregularities of form and distribution, anomalies of spacing, microdontism, cleft teeth, white sulci, and the tendency to early decay. All of these are common to hereditary syphilis, and while not pathognomonic of the disease and perhaps of no significance at all when appearing alone, yet the least of them may become a sign of vital consequence when associated with a distant, active, morbid process of doubtful pathology.

Fig. 3.—Moderate type of widely spaced upper central incisors. Cervical adenitis with sinus; osteochondritis of sternoclavicular joints; extremely tender tibiæ. Formerly treated for tuberculosis. Wassermann positive. All symptoms have subsided under mixed treatment.

The point which the writer seeks to emphasize is the value of an otherwise trivial dental anomaly as a clue to the pathology of an active lesion occurring elsewhere in the body It is evident that syphilis may, by invasion of the dental follicles during their period of development, produce an almost limitless number of peculiarities, and it is important to remember that anomalies of the teeth, no matter how slight, are frequently suggestive of hereditary syphilis. It follows, therefore, that by routine examination of the teeth we may acquire information which will direct us toward the correct solution of a blind clinical problem.

In connection with this attention is particularly called to abnormal spacing between the two upper central incisors (Fig. 1), which, when occurring alone, has not heretofore been regarded as of diagnostic significance. There is nothing in the extensive investigations thus far made by the writer to indicate that this condition may not be produced by other causes than syphilis and it would be most unwise and unreasonable to mark all people with widely spaced teeth as the bearers of hereditary taint. Nevertheless, the fact that the anomaly occurs in recognized syphilitics at times gives to it a distinct diagnostic value. It may, indeed, be the only dental irregularity in a subject of inherited syphilis (Fig. 2) and has in the writer's experience been the means on many occasions of detecting syphilis which had been for years overlooked. The importance of this observation will perhaps best be illustrated by briefly outlining actual cases.

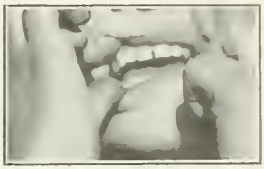

Fig. 4.—Widely spaced upper central incisors of the moderate type. Patient treated seven years for tuberculosis of knee. Symptoms reappeared after removal of cast. Complete restoration of function after a course of mixed treatment without immobilization.

Case I.—A boy, fourteen years of age, had for two years been treated for tuberculosis of the elbow, which was ankylosed at a right angle, and a sequestrum of dead bone had been removed from the lower end of the humerus leaving a sinus which refused to heal. On the clue furnished by widely spaced upper incisors, a diagnosis of probable syphilis was made, notwithstanding a negative Wassermann. Under the influence of mixed treatment the sinus healed rapidly and complete function was restored to the joint.

Case II.—A boy, eight years old, had been treated for six years for tuberculosis of the knee during which time the joint had been immobilized in plaster of Paris. A large atypical lesion was revealed by the x ray in the upper part of the right tibia, extending downward from the epiphyseal line. Widely spaced upper incisors suggested syphilis and under mixed treatment the symptoms subsided, the x ray showed bone regeneration, and joint motion returned.

Case III.—A boy, twelve years old, whose hip had been locked up for a year in a plaster spica on the supposition that he had tuberculosis of the joint with a profusely discharging sinus, presented widely spaced upper incisors in otherwise perfectly regular teeth. On this evidence he was placed on mixed treatment. The sinus healed and all hip symptoms rapidly disappeared.

Fig. 5.—Widely spaced upper central incisors in otherwise perfectly regular teeth. Inherited syphilis; positive Wassermann. Two other children in same family have similar teeth and active lesions of hereditary lues.

Case IV.—A girl, fifteen years of age, had been treated for six years for lesions of the left hip and right knee She was twice admitted to an orthopedic hospital. When she came under the writer's observation the hip had cleared

up, but she was still wearing a brace extending from the sole of the foot to the groin to protect the knee which was stiff, tender, and painful. The presence of widely spaced upper central incisors and other dental irregularities suggested syphilis. Under the influence of mixed treatment the symptoms disappeared and the brace was discarded.

Case V.—A young woman, aged twenty-three years, came

Fig. 6.—Widely spaced upper incisors, no dental units missing. Hip symptoms which had persisted two years disappeared under mixed treatment. Wassermann negative. Brother has dental evidence of inherited syphilis.

under observation with enlarged glands of the neck, associated with a discharging sinus of a month's duration. She had been told that these were tuberculous and had received a course of tuberculin treatment. Because of widely spaced upper central incisors (Fig. 3), she was referred to the writer for an opinion. On examination it was learned that when nine years old a similar condition existed for three years. Two years ago an enlargement occurred at the upper end of the sternum and tenderness still remained at the sternoclavicular joints. There was also tenderness of the tibiæ. The symptoms disappeared under mixed treatment. The Wassermann in this case was positive.

Case VI.—In 1910 a boy was taken to a large New York clinic because of pain, swelling, and stiffness in the right knee. A diagnosis of tuberculous arthritis was followed by immobilization in plaster for three years. The cast was then removed, but reapplied later because of a return of pain and stiffness. This experience was repeated several times and when he came under observation he had been three months without protection. Pain, stiffness, and limp had reappeared and on the clue furnished by widely spaced upper incisors and multiple erosions of other teeth (Fig. 4), he was placed on mixed treatment. All symptoms disappeared in three weeks without resorting to a plaster cast.

Case VII.—A girl, aged sixteen years, with symptoms of mental depression had had various diagnoses and many forms of treatment without result. On account of widely spaced upper central incisors (Fig. 5) she was placed on mercury and potassium iodide with striking improvement. The mental condition cleared up and remained normal until she discontinued the medicine of her own volition, when the depression reappeared, but was again promptly controlled on resumption of treatment. This patient was later found to have a positive Wasserman, although two other children in the same family with widely spaced upper incisors and other evidence of syphilis gave negative reactions.

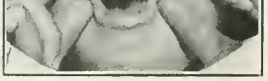

Fig. 7.—Widely spaced upper incisors. Child has had more or less continuous headaches for several years. Sister has widely spaced incisors and hip disease. Both improving under mixed treatment. Father contracted syphilis two years before marriage, and Wassermann still positive a year ago.

Case VIII.—Another patient had been in bed two weeks in one of our large hospitals with supposed hip disease, symptoms of which had been present two years. Widely spaced upper incisors were present (Fig. 6), and, although the Wassermann was negative, he was given mercury and potassium iodide on the dental evidence alone and made a fairly rapid and complete recovery.

Case IX.—During the examination of a married woman, thirty years of age, widely spaced upper central incisors were observed. Inquiry regarding her past medical history revealed the fact that for years she had had recurring attacks of severe periostitis of both tibiæ, recurring corneal ulcers in childhood, an undiagnosed persistent rash in childhood, "urticaria" of several weeks' duration in later years, frequent severe headaches all of her life and, to quote her own words, "there was always something the matter." She had never borne children. She recognized the taste of the potassium iodide which was prescribed for her bone tenderness and said she had taken the same medicine years ago and that her father, too, had taken it for a long period of time. The tenderness of her tibiæ, which was extreme and had persisted for months, entirely disappeared after a few weeks of mixed treatment.

Case X.—A boy with vertebral caries simulating Pott's disease was treated for several years by means of plaster jackets and was finally operated upon by implantation of a bone graft into the spine. The graft eventually sloughed, leaving several profusely discharging sinuses, and when he came under observation his condition was desperate. Examination revealed typically notched teeth and a course of mixed treatment was instituted with most gratifying results. The sinuses healed, general nutrition improved, and when he was taken from the hospital the boy was able to stand and take a few steps alone.

Case XI.—A different type of dental deformity, the fissured tooth, was responsible for a diagnosis of inherited syphilis in an undersized boy, ten years old, who for a year had had occasional mental symptoms and a slight limp due to pain about the left ankle. He had been seen by several pediatrists and neurologists who overlooked the cause of his trouble. An x ray revealed a lesion in the lower end of the tibia adjoining the epiphyseal line. Mercury and potassium iodide cleared up all his symptoms in a few weeks.

These varied instances of unrecognized syphilis, which might easily have been diagnosed at the onset of symptoms, indicate not only the wisdom but the necessity as a routine procedure of inspecting the teeth. They are suggestive, too, of the value of the minor dental defects, especially widely spaced upper incisors, as an index of inherited syphilis.

It is not to be assumed from what has been said of the results of the cases cited, which were selected from a series of over fifty now under observation, that recovery always takes place in a few weeks. Signs of improvement often appear in ten days and in this series those without definite bone lesions cleared up rapidly. On the other hand, x ray records indicate that complete osseous regeneration, when it does take place, requires from ten to fourteen months of constant treatment.

In conclusion, let it be repeated that the typical Hutchinson tooth, with which we are all familiar, is but one of many types of dental deformity produced by inherited syphilis. The very nature of the disease, most active as it is during the period of tooth formation, may produce an infinite variety of abnormal dental shapes and arrangements, the presence of any one of which when associated with disease in other parts of the body should arouse suspicion as to the pathology of the active process where positive evidence of its nonsyphilitic origin is lacking. To ignore these signals of hereditary taint which nature has placed so conspicuously before us to invite diagnostic disaster.

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PROPHYLACTIC INOCULATION IN TETANUS.

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Since my article on our work in Serbia in surgery and medicine, I have received so many letters of inquiry from my colleagues from all parts of

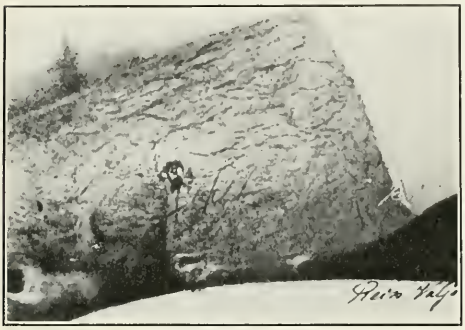

Fig. 1.—Wound caused by an explosive bullet. The wound of entry. (Hospital in Valjevo, Reiss.)

United States, asking especially about our experience with cases of tetanus, that I considered it my duty to write upon this subject. The general use of immediate preventive inoculation in our cases was a precautionary measure of the utmost importance, especially in surgical cases. At our hospital in Uskup, during 1914-1915, we inoculated 8,272 wounded soldiers and hundreds of medical patients, not to mention civilians of the city and vicinity, including persons of all nationalities engaged in war without distinction. In the General Hospital "U gradu" there were 18,096 surgical cases during that time, not counting cases from foreign and local missions.

When we left for Serbia in October, 1914, we bought, with the kind support of our benefactor John W. Frothingham in New York, many gallons of antitetanic serum from one of the most reliable American firms. We had enough of this valuable prophylactic material to supply other military hospitals near the front and base hospitals. Thus, many cases of tetanus were modified and others prevented altogether. In all our surgical work only six cases of tetanus and two fatalities occurred in one year of actual experience—this under the most miserable circumstances and with the poverty and the most wretched sanitary condition of an exhausted and stricken people and their armies struggling for existence.

When we first saw the terrible lacerated and infected wounds, fractures with crushed bones, and peculiar injuries of all kinds on our arrival in Gevgelija (Dzevdzelija) we at once realized that the prevention of wound infection would be the key to successful emergency work. At the railroad station at Gevgelija near the firing line, we had to take care of the first transport of wounded Serbian soldiers who had been attacked by their Slavic brethren, the Bulgarians near Strumica, a few miles from Gevgelija. We applied a great number of first aid dressings at the railroad station, and later at the hospital, a new tobacco factory near by, we took care of 1,609 patients, trying our best to secure under the prevailing conditions an aseptic status for all the wounds and of everything which was brought in contact with them. We established by the most simple methods thorough disinfection of the wound and its environment, the field of operation, the hands of the surgeons and assistants, and instruments, sponges, sutures, ligatures, drains, and dressing material. We maintained as far as possible hygienic condition in the surroundings of the patients and their personal hygiene, and provided clean nourishment and the proper nursing. The insanitary conditions around the building had to be changed and more beds ordered. After one week we left for Uskup under convoy, the destroyed bridges over the Vardar having been repaired. We left Doctor Guca and two nurses of our unit in Gevgelija until the two American Red Cross units arrived.

We soon found out how complicated is the process of wound infection; we had to strive not only to guard against the entrance of the infecting organism, but to work at the same time to prevent conditions known to favor the reproduction of the organism. The hospital was overcrowded, the transports arriving three or more times a day. In Uskup, and also in Gevgelija, we had cases of nonsuppurative wound infections and, especially during the typhus epidemic, many cases of erysipelas, erysipeloid and few cases of tetanus. These cases furnished the most striking examples of what could be done when antitetanic serum was given in time. Here and in other hospitals it was observed how easily a large proportion of the cases of tetanus were modified to an atypical form. This was due to the general use of immediate prophylactic inoculation with serum in contrast with other cases where the symptoms were controlled from the start.

Having some experience with the acute and chronic infectious disease caused by the tetanus

Fig. 2.—Wound caused by an explosive bullet. The wound of exit. (Hospital in Valjevo, Serbia, Reiss, 1914.)

bacillus, especially in trauma, we carefully studied the history of each wounded soldier. We inquired as to the history and character of the injury,

whether dirt, clothing, mud, or small fragments and particles of bullets and projectiles were carried in; we got information about the vicinity where the wounds were received and in what soil; we asked

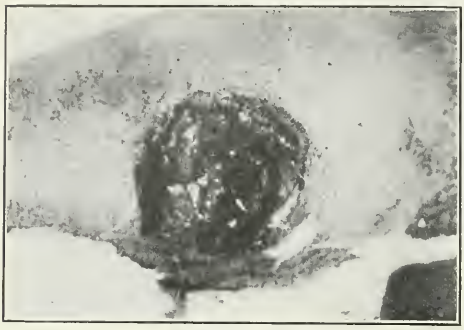

Fig. 3.—Wound in leg caused by an explosive bullet. Wound of exit in shape of a mushroom. (September 29, 1914. Valjevo, Reiss.)

if putrefying liquids, old straw, manure, rubbish, and dust, were near by. When the patient had a lacerated wound, crushed bones, compound fractures with constantly draining sinuses, a wound apparently full of pus without apparent cause, or wounds produced by bullets—*Einschusspatronen*—so called dum-dum, etc., he received at once a prophylactic dose of serum to guard against tetanus. The last mentioned wounds were especially carefully observed. In general in such a case the wound of entrance was small. The wound of exit from the body was enormous, the flesh often protruding in the form of a mushroom and being terribly lacerated. The inside of the wound was shattered, the bones, when struck, broken into small pieces and splinters, and some particles of the projectile were remaining. The bullet on exploding inside of the body broke up, the fragments acting like a shrapnel. To this was added the effect of the gases. These wounds were very dangerous, and in all such cases serum was given at once, the prophylactic dose being at least 1,500 units, in three injections or 500 units a day, and sometimes even more, repeated as the case progressed. A limb struck by an explosive bullet was almost always lost; a wound in the head or the trunk was in majority of cases fatal. Ordinary bullets fired at close range may also produce wounds in which the orifice is normal at the point of entry and very large at the point of exit; but in these cases, of which we have had a very great number, the tear and the channel through the body was not so large as in the wounds made by explosive bullets and the danger of tetanus was not so great with comparatively clean bullets.

In cases where we had to extract from the wounds shattered fragments of explosive bullets, as found on x ray examination, the serum was given at once. We also gave serum in cases in which the wound seemed to be very small and not progressing favorably and when the patient told us that he had heard two explosions when fired at—the sharp report of the rifle as it was fired and a second explosion which seemed to occur sometimes behind them and sometimes in front, the fragments of the bullets striking the ground and producing a comparatively small, but unclean injury, a simple scratch, or a small punctured and contused wound. We found that in a majority of the cases a slight injury may serve as a gate of entrance for the poison or the anaerobic bacillus, which cannot grow in the presence of oxygen. The injuries were almost always on the extremities, particularly on the hands and feet, but we had also cases of head, trunk, and abdomen injuries. In acute tetanus the duration of incubation was about two weeks, while in chronic cases the symptoms appeared usually after the second week. The members of the English units had the same experience, dividing the modified form of the disease into three types: splanchnic tetanus, cephalic tetanus, and local tetanus of the extremities. Our two patients who died had wounds of abdomen and thorax. The general convulsions and opisthonus were absent; the spasms were limited to the muscles of deglutition and respiration and death occurred from respiratory paralysis. In one case of the cephalic type the patient showed symptoms of delirium, the paralysis involving the facial nerve, together with muscular spasms, the oculomotor nerve, and finally even the hypoglossal nerve. In local tetanus of the extremities we observed the same symptoms which Burrows describes: "There was tetanic spasticity of the muscles in some cases; in others no symptoms were observed in the beginning, but later forms of restricted stiffness and rigidity limited to certain groups of muscles developed gradually." At first though, the patient complained of tension of the muscles of the jaw, the ear, and back of the neck, and soon tonic spasms of the masseters rendered the facial muscles more or less immobile and locked the jaws. In other cases the rigidity of the cervical muscles was marked by the distinctive physiognomy and the sardonic grin of the patient. Fever of moderate degree was present. Prognosis in the acute form was more guarded than in the chronic, depending altogether upon the reaction after regularly repeated injections of antitoxin and the behavior and condition of the original wound.

The wounds were disinfected with tincture of

Fig. 4.—Collection of fragments of explosive bullets, extracted from wounds of Serbian soldiers; danger of tetanus. (Sjeceff.)

iodine, salt solution, etc., and thoroughly cauterized. In order to do this effectively, the agents employed were brought in contact with every portion of the wound. Punctured wounds were first laid open.

"The fact that the deadly poison is developed at the site of infection," as Anders says, "gives to the local measures supreme importance in the treatment of tetanus" (1). At the first warning we moved the patient into a secluded dark room with good ventilation and carefully regulated temperature. For all these cases we assigned one special male nurse with orders to remove all sources of external irritation, to give light but nourishing diet by means of small tube or catheter passed through the nostrils, and if necessary to administer food per rectum. The heart was stimulated by hypodermic injections of strychnine and digitalis. The spasms were best controlled by chloroform inhalations, and during the intervals the patient was kept under the influence of morphine administered subcutaneously.

We have studied carefully the immunizing value of tetanus antitoxin, and have found that doses in the strength usually recommended by the manufacturer are almost useless in cases in which the symptoms have progressed beyond languor and headache, or the prodromal stage. Therefore we increased the dose according to the symptoms. The established affection defies all known methods of medical treatment, and our aim should be to combine all modern ways with large doses of serum to diminish the intensity of the painful spasms and all other disturbances as soon as possible. In doubtful cases and in those cases where the condition of the wound was such that we expected infection, the protective inoculation was carried out by injecting the serum hypodermically as early and efficiently as possible, reducing the danger and frequency of the disease with precision.

In other hospitals, Serbian especially, the carbolic acid treatment was used, until our serum was received, which, it was stated, was better than the antitoxin made in Germany. The antitoxin made in Germany was not only weaker than ours, but it was too old, having lain here since the last Balkan war. Therefore, the Baccelli method was followed. The wound was cleaned with strong antiseptic solution, either corrosive sublimate or carbolic acid. The patient was then placed in as quiet a place as possible, and all the ordinary rules of diet and care, etc., were observed. If the case was one of only moderate severity, they commenced with doses of three grains in twenty-four hours, rapidly increasing the dose to double or triple quantity. Chloral, morphine, strychnine, etc., was given as usual, as with the other treatment when the carbolic acid was given hypodermically. The patients were remarkably tolerant toward these injections, but the results with our American serum later on were better, as they said in antagonizing the toxins and quieting the nervous system. Strange as it may seem, there were not many cases of tetanus altogether, even at the beginning of the war with Austria, August, 1914, but in Valjevo, Reiss found many developed cases of traumatic origin on the fields of battle of Crnabara and Parachnitza, due to expanding cartridges and explosive bullets of Austrian make.

Our Doctor Borcic proved beyond doubt in his field laboratory that tetanus appeared in rabbits in twenty-four hours after the injection of pure culture. In our two cases with all the characteristic symptoms of tetanus death occurred in three and four days, respectively. In tetanus certainly the action of the microbes on the tissues was entirely different from that of erysipelas, and of those lesions we had also a few. In erysipelas the streptococcus was always found in the tissues affected, and its rapid multiplication in the body was an important element in the extension of the infection. In tetanus the bacillus does not seem to multiply to any extent in the body, but its presence was determined in our cases, with the help of the microscope, in the wound secretions or in the tissues at the point of inoculation. "The tetanic spasms extending in more or less rapid succession to the different muscular groups, according to the acuity of the disease, are caused by the action of the toxins at the distance from the seat of infection, which found their way through the fluids of the body to remote parts" (2). Therefore amputation of entire limb would not eliminate the toxins that have invaded the central nervous system, as the bacillus enters the tissues deeply before it can exert its specific pathogenic action. At this moment we had to inoculate to prevent or modify the symptoms of tetanus altogether.

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1900 BLUE ISLAND AVENUE.

THE FUNCTIONAL NEUROSES.

By ADOLPH STERN, M. D.,
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An important step toward gaining a clear insight into the mechanism of the neuroses and of the psychoses was made by Freud through his elucidation of that phase of human psychology which deals with the emotions, or, as we call them in our work, desires or impulses. His work has thrown considerable light not only on abnormal, but also on normal psychology, and before going into the description of the neuroses proper, I think it advisable to mention briefly some of the salient features of the psychanalytic work, which has made possible the elucidation of the psychical mechanism in the neuroses, rendering them intelligible and accessible to therapeutics.

If it is accepted as axiomatic that the neurotic is retarded in his emotional development, or, as we say, he is infantile, much confusion is dispelled at once relative to his heretofore apparently impossible, unintelligible, foolish, or meaningless actions or thought processes. They are purposeful and replete with meaning; they hide from the patient his own impulses, but betray to the man versed in the symbolism of the neuroses what the patient himself does not consciously know. It is the purpose of the psychanalyst by removing the inhibitions of the patient to get him to see himself as he is and to adjust himself to his environment as the normal adult does. The neurotic in his symptoms has a definite purpose in view, though the end to be accomplished is unknown or not consciously recognized by him. The thought or action appears erratic because some-

where on the road between the origin of the impulse, or wish, and the end result a psychical force (repression) has achieved a distortion or a displacement of emotion from the original impulse, so that the end result, instead of being a fulfillment of the original wish as such, comes to the patient's consciousness as a symptom. One may ask: Why should distortion be employed to disguise a wish? Because the nature of the impulse or wish is in marked dysharmony with the cultural development of the patient. Freud has truly said that the neurotic, in many phases of his emotional life, lives in the past. Those desires and impulses in a child under four or five years of age, i. e., before the feelings of shame, disgust, or morality have taken form, are considered almost as physiological; we hope and expect to see them disappear as development of the social side of the individual takes place. These impulses we find as the underlying cause of conflict in patients suffering from the psychoneuroses. That which years ago to the patient as a child was a source of pleasure realized as such, now in his grown up state is converted by means of the elements of shame, morality, etc., of the adult into a conscious displeasure, in a way into a punishment to himself for having such a wish or impulse. Thus we explain the involuntary smile or even indifference with which the hysteric tells of his symptoms, no matter how grave they may be. The involuntary smile seems to imply, "I enjoy my suffering," a condition made clear if we conceive of the patient as having accomplished a satisfactory result to himself, though the mechanism by means of which all this has been brought about is unknown to the patient.

We say, then, that the distortion is due to the fact that unconsciously, if you can conceive of it, the patient has realized the incompatibility of the nature of the impulse with his moral self; yet being unable to forego the fulfillment of the repressed pleasure in spite of the nature of the wish or impulse, a conflict arises between the repression and the impulse; and the symptom, a compromise between the two forces, is the result. The symptom is the original wish in a form compatible with the moral or social self of the patient and at the same time consciously conceived by the patient as displeasure and unconsciously accepted as the opposite. In the form of a symptom the original impulse is unrecognized by the patient as such. Analogous phenomena, or processes, are everyday occurrences. How often do we consciously, by a little shading down of its crudities, give expression to some thought, which now carries a meaning identical with that contained in the original one, yet which could not have been spoken in its original state either for fear of offending our own or others' esthetic or moral self?

We then conceive of the neurotic as a hypersensitive individual, groping about in the dark in his attempt to adjust his moral self to his primitive or instinctive impulses, which insist on fulfillment. It is in this way that he differs from the pervert. The pervert accepts for himself, as his emotional life, that against which the neurotic is striving to defend himself, at the same time unable entirely to do without it in some form. The neurotic has fallen in the conflict or struggle, yet a victor, in that he has not yielded and become a pervert. The normal person has succeeded in repressing, or, better, sublimating these impulses, at the same time maintaining more or less emotional health. These impulses are present in all of us, representing instinctive desires incompatible with our cultural growth. To that extent then we all have in us the neuropathic constitution.

What is the nature of these desires? No matter what form the symptoms of a neurosis may take, their ultimate reduction as to etiology leads to one source. I refrain from mentioning the word until I attempt to clear away some misconception regarding this much abused term in its application to the causation of the neuroses. As far as some of the manifestations of the actual neuroses are concerned, namely, neurasthenia and anxiety neurosis, the meaning of the term "sex" should be taken in its generally accepted sense. These two forms are caused by some gross disturbance of the normal sexual function, as I shall explain later. When, however, we think of a sexual disturbance as the cause of the psychoneuroses, it were better to conceive of the pathologically sensitive emotions present in the neurotic as the disturbing agents. In the neurotics we find all the normal emotions present in an abnormal quantity. It is in his attempt to adjust himself to these pathologically enlarged emotions that the neurotic comes to grief. In him are present to an abnormal extent feelings of fear, hate, envy, jealousy, distrust, apprehension, anxiety, revenge, and spite, to name the most important. These "feelings" are present in all of us, but superabundant in the neurotic. All these emotions are also manifest in very young children to an extent pathological from the viewpoint of the adult. Some of these impulses in their instinctive state are present in animals, in whom they serve the purpose of selfpreservation, being in all instances necessary in the animal world, where might is right, and fulfillment of desire is based solely on physical limitation.

The animal has but two desires to satisfy, hunger and sex, and his emotional reactions are present to further these two impulses. In this respect they are essentially egocentric. We find this in very young children and also in the neurotic. All the emotions in the human being, also, are primarily egocentric and only later does his cultural or social side manifest itself, after, say, the age of five years, when he learns to renounce some of his instinctive desires. However, all the emotions I mention are traced back ultimately, as Freud has shown, to the hunger and sex instincts, and that is why we say that sex, in the infantile sense, plays such a decisive rôle in the etiology of the neuroses.

The neuroses are classified as follows: 1, the actual neuroses, embracing a neurasthenia and the anxiety neurosis; and 2, the psychoneuroses, made up of hysteria, or the conversion hysteria of Freud, anxiety hysteria, and the compulsive states such as obsessive thoughts and acts.

The classification is founded on an etiological basis. At times it is rather difficult to draw sharp lines in classifying some cases. Though pure forms

do exist, examples of mixed neuroses are frequently observed, in which both physical and psychical sexual factors enter into the causation of the symptoms. "In the actual neuroses the symptoms are due to physical causes and are not further reducible by psychological analysis; whereas in the psychoneuroses the symptoms can be demonstrated to be the end product of intricate (unconscious) mental processes" (1).

Neurasthenia, the first of the actual neuroses, is a term still very vaguely applied by medical men in general. Very frequently every form of the functional nervous state, with the exception of hysteria proper and compulsion states to which the term psychasthenia is often applied, has been included under the heading "neurasthenia." The term should be limited to that functional nervous condition which is characterized by a state of fatigue, sense of pressure on the head, flatulent dyspepsia, and constipation. "The disease is usually due to excessive onanism, or involuntary seminal emissions, practised in spite of painful emotional conflict" (1).

The other actual neurosis, by far the most common of all the different forms, is the anxiety neurosis, so called because its most constant and most prominent symptom is a morbid anxiety, anxiousness, or dread. This condition has two forms: the acute anxiety attack, not very common, and the chronic form, which is by far the more prevalent. In the acute anxiety attack, which varies widely in its severity, the patient suffers from an intense anxiery or dread, with fear of impending death or insanity. The attack may produce loss of consciousness. As a rule there is a sense of suffocation, deep respiratory efforts, general sweating and flushing of the skin, fullness of the head, tremors, profuse diarrhea, and frequent micturation. As a rule the heart action is greatly accelerated, with anginal pain, distress, or palpitation, and feeling as if the heart had stopped. Nausea, vomiting, and dizziness are frequent and distressing symptoms. During an attack the patient suffers intensely and looks sick. In the chronic form of this disease, the patient is in a state of apprehension or uncertainty. This emotion frequently attaches itself to the ordinary tasks of the individual, making them seem bigger than they really are—in a minor form the individual, who worries much. It also attaches itself to conditions which usually evoke some emotion of dread, like fear of burglars, the dark, thunder, etc. Sleeplessness, general irritability, and hyperesthesia to sound commonly accompany an anxiety state. Other symptoms of the chronic state are giddiness, paresthesia—rheumatic like pains—vasomotor disturbances, nausea, and vomiting. When one set of symptoms, either cardiac or gastrointestinal for instance, predominates, errors in diagnosis are likely to occur. In the chronic cases the anxiety may not manifest itself except in the complaints regarding the physical symptoms resembling neurasthenia, but with the symptoms more diverse.

The etiology of anxiety neurosis can in general be stated to consist of sexual deprivation or excitation, leaving an unfulfilled desire which never comes to the conscious knowledge of the patient as such, but for some reason is repressed and converted into anxiety.[1] The main conditions concerned in the production of an anxiety neurosis are embraces of engaged couples for long periods with consequent excitation and no satisfaction; interrupted intercourse in the married; and sexual abstinence in an individual who suddenly ceases to indulge in intercourse, as following the death of the marital partner, or on refraining from long continued masturbation. It at times occurs in the aged, both male and female, around the climacterium, with sudden increase of desire. Treatment is naturally suggested by the underlying etiology. A correction of the abnormal sex life brings about very good results as a rule.

The essential difference between the actual neuroses and psychoneuroses lies in the etiology of the two conditions. In the former the cause lies in the present and is due to some gross sexual disturbance. In the latter, however, while the inciting cause is in the present, the essential cause lies in the past in the early childhood of the individual, in reality before the age of five. While apparently a banal condition, like business reverses or a shock of some kind, does precipitate an attack, yet in reality these influences do not bring about a psychoneuroses unless the individual has failed to adjust himself to his infantile experiences; if his unconscious attitude to his environment, from the viewpoint of his emotional life, is a normal adult one. Perhaps I can best bring out my meaning through an example, which at the same time will embody in it the features and mechanisms on which we base our conception of the etiology and therefore, also, the treatment of the psychoneuroses.

CASE.—About two years ago a man, thirty years of age, married at that time but two months, came to see me because he was beset with fears of imprisonment for som minor offenses committed three years before the onset of his present illness. Grave doubts as to his ability now to make a living, marked anxiety, sleeplessness, crying spells, and restlessness made up the picture of an anxiety hysteria. He was a capable lawyer, energetic and ambitious, whose dishonest acts would not have entailed imprisonment even if he had been detected in their commitment. They did not worry him at the time they were committed, but now they loomed large; he felt guilty and feared the consequences of his misdeeds. He argued by himself and with his friends concerning all the possibilities, and logically proved to himself that he ought not to fear, yet could not dispel this intense apprehension and anxiety. The onset of the condition was precipitated by the dissolution of his partnership with an older man, on whom he had relied to conduct the management of his law practice. Thrown upon his own resources, he lost courage, wished to give up his offices entirely and seek some means other than the practice of law to earn a livelihood. The condition rapidly took the form I have described.

The analysis revealed the different components that made up the picture. It developed that though only married two months, quarrels had been frequent between wife and husband, who had fancies now and then of a separation, being convinced in his own mind that all love be-

[1] Though Freud separates the neuroses into the actual and psychoneuroses, and lays stress on some gross sexual disturbance as the etiology of the former, thereby seeming to imply a purely physical cause for its being, I agree with those who believe that no neurosis exists without a mental conflict. For instance, among married people practising coitus interruptus, the partner developing the neurosis may have had, momentarily perhaps, the following thoughts or similar ones, which then disappear: "If I were not married now, I could indulge to my heart's content." Perhaps fancies follow in which the individual realizes this repressed wish. The feelings of guilt which follow these fancies, conceived by a neurotic as actual, are important factors in the formation of the pathological anxiety.

tween them was gone. He had had fancies as to what he would do if his wife died. The quarrels between the couple as a rule resulted from the insistence of the husband that his wife was trying to separate him from his "family," i. e., his mother and his youngest sister; and on the tendency of these two to dictate to the young wife as to how she should act toward her husband. The young husband very readily overlooked the faults of his mother and sister, while those of his wife he constantly brought to her attention. Through his dreams the patient was enabled to see that this blind attachment to the female members of his former family was in reality an unconscious love, which prevented his loving his wife—patient was psychosexually impotent—and the first opportunity to break up his home was unconsciously converted into a doubt of his ability to make a living—breaking up of partnership—the breaking up of his home to be followed, as he pictured in his fancies, by his going back to his mother's home to live.

In this disease we have a totally unconscious love for his mother and a sister, and unconscious criminal desires toward his wife, as shown in the thought "what would happen if my wife died." These two impulses giving rise to anxiety, apprehension, and feelings of guilt, unconsciously brought about and displaced from the deep sources of guilty feeling—unconscious incestuous feelings and criminal impulses—to acts committed, in themselves unable to evoke so much emotion. The illness, however, made the patient somewhat unfit to carry on his profession and was his unconscious attempt to justify his failure to support his wife, whom he thought he did not love, and enable him to go back to his old environment, in which he was the favorite son, more loved than loving. Underlying the entire neurosis was this unconscious fixation, which made a transference of that love to a stranger an impossibility. Psychanalysis made all this conscious to the patient, enabling him to see things as they are, and acting as a cure.

This represents an anxiety hysteria, differing from the so called conversion hysteria, in that the repressed emotion remains entirely in the psychical sphere; whereas in the conversion hysteria the repressed emotion is taken from the psychical sphere into the physical, being converted into a physical symptom, as, for instance, the paralysis of a limb. The mechanism of the obsessions resembles that of the anxiety hysteria, though we may have obsessive acts in addition to thoughts.

To sum up: Neuroses are definite disturbances in the emotional sphere of an individual, having definite etiological bases and being divisible into separate, distinct forms, each form having more or less distinctive clinical features. The neuroses as we view them are intelligible psychological phenomena, amenable by the psychanalytical method, to a rational form of therapy.

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120 West Eighty-sixth Street.

ISLAND FLAPS.

By J. F. S. Esser, M. D.,

Dutch Surgeon for Plastic Operations, Now in Vienna.

The wounded soldiers in Austria afforded many cases of facial injuries which healed with large deforming scars. If these scars were near the corner of the mouth, I often used flaps from the neck directly under the jaw line, near the external maxillary artery. These flaps had no skin pedicle, but one of deep soft tissue and which contained the external maxillary artery. I call them "island flaps" because, after being placed in the facial defect resulting when the scars are removed, they give the effect of a free transplantation. If this flap can be taken just on the border of the defect the procedure is very advantageous, as the flap need not be much more than half the size of the defect, because in sewing together the secondary defect the primary becomes much smaller by this manipulation. When the flap cannot be taken from the border of the defect, the skin bridge between the defect and the flap may be split. Some tissue must be removed from the split to allow the pedicle to lie in it. If the flap has to be moved any great distance, the pedicle must be rather thin and elastic, but even when the artery is in it nourishment of the skin flap is exceedingly good. I had a case where the seam of the island flap became inflamed and the sutures had soon to be completely removed and a secondary seam, after livening of the edges, was necessary. The flap was never endangered and always showed splendid circulation; the secondary seam healed finely (Case II).

Fig. 1.

Fig. 2.

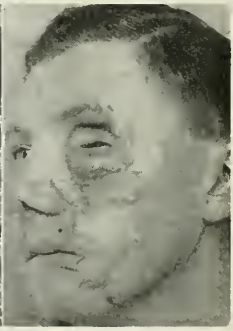

Fig. 3.

The advantages of the island flap are striking in nourishment and cosmetic effect, as no turned skin pedicle is to be seen and the tension is equal everywhere. The procedure is also as practical as it is easy, even for inexperienced plastic operators, while this cannot be said of the choice of skin pedicle flaps. Besides, I have practised other island flaps of the face in cases where I wished to give mucous membrane substitute out of the skin.

Case I.—The wound in Infantryman F.'s face, Royal Reserve Hospital No. 8, Vienna, healed after shot injury with loss of the right eye and strong scar development over the entire cheek, so that it was as hard as a board and showed ray formed scars (Fig. 1). The left mouth

corner was destroyed and quite immovable. The under eyelid turned outwards (ectropion). After complete excision of all the scars, I placed a large island flap as above described in the large defect. The soft tissue pedicle was taken, as mentioned, in the cut of the skin bridge between

Fig. 4.

Fig. 5.

defect and flap. Fig. 2 shows the result about ten days after this operation. Fig. 3 shows the result shortly after correcting the corner of the mouth and levelling the under eyelid with a pedicle flap, taken from under the outward corner of the eye vertically downwards—pedicle at the top—and placed in a horizontal incision under the eyelid. The patient after some small seam corrections will look very well, and his mouth and eyelid are now already quite moveable.

Case II.—Infantryman D., Royal Reserve Hospital No. 17, Vienna, was shot in the jaw. After healing of the fracture the underlip was quite immovable and saliva flowed from it. Round the outer scar, the changed skin was contracted and grown together with deep inner scars, so that the whole was as stiff as a board. In this case an island flap was taken from the border of the large defect that had arisen after excision of all the abnormal tissue, and placed in the defect reduced by sewing the secondary defect together. This is the case in which, as mentioned previously, inflammation of the island flap seam necessitated the removal of the sutures, the livening of the edges and secondary suturing. The result is functionally perfect, but to improve the cosmetic effect an aftercorrection could be made in replacing the still somewhat overturned red of the lip. (Figs. 4 and 5.)

Fig. 6.

Fig. 7.

Fig. 8.

Case III.—On soldier F. B. of the same hospital I made a large plastic to build a new upper lip, his own having been entirely shot away. After this, the mucous fornix was too small to receive the dental prothesis. Therefore I turned a piece of the cheek skin from under the eye, only pedicled with soft tissue, inwards into a horizontal incision of the mucous membrane and penetrated all the tissue to the skin and ended just in the lower skin incision; the pedicled skin flap then turned through the horizontal incision to the mouth inside, and was then sewn together with the mucous membrane wound edges. The skin secondary defect was closed linear.

Case IV.—Infantryman T. was relieved of an immobilizing scar after mouth jaw shot in a similar way to Case II. (Figs. 6, 7, 8.)

HALLUX VALGUS.

A New Operative Procedure.

By Joseph E. Fuld, M. D.,
New York.

Hallux valgus is an outward displacement of the great toe. The condition is very common and only attracts attention when the bursa, ordinarily known as a bunion, over the metatarsophalangeal joint becomes inflamed. It is rarely congenital and it is sometimes caused by rheumatoid arthritis; in fact, it is usually accompanied by a dry, inflammatory arthritis. The most frequent cause, however, is the wearing of ill fitting or too short shoes, and for this reason it is more commonly found in women than men, probably because they are more often influenced by prevailing fashion in shoes unsuited to their feet and their muscles are less able to oppose the deformity effected by pressure over the joint.

An improperly shaped shoe, or one too short for the foot, may necessitate walking on one side of the foot, resulting in flat foot, crowding of the toes, hallux valgus, hammer toe, or abducted foot, a condition the pathology of which it is difficult to differentiate from that of hallux valgus. High heels also crowd the foot forward so that dorsiflexion and adduction of the great toe result, the interphalangeal joints and the great toe deviate outward, and there is inward protrusion of the head of the metatarsal bone, which becomes hypertrophied. I have seen cases of cellulitis of the foot arising from neglected bursitis. The internal lateral ligament of the joint is stretched and the external lateral ligament is shortened and thicker than normal. The tendons of the muscles on the inner side are lengthened and those on the outer side are shortened. The soft parts over the inner aspect of the joint are thickened and enlarged and include a bursa with a superimposed corn or callus. This bursa may be inflamed and it sometimes suppurates. The value of the great toe as an inward brace to the foot is thus destroyed. Pain is caused by the pressure of the shoe on the acute bursitis and by pressure on the anterior tibial nerve between the shoe and the underlying part of the bone and also

on the nerve fibres between the bony outgrowth on the base of the first phalanx of the great toe and the side of the first phalanx of the second. Relief can sometimes be obtained in slight cases by wearing proper shoes and right and left socks or stockings with a separate compartment for the great toe. The toe should be massaged and corrected manually several times a day and a soft plug should be worn at night between the first and second toes.

Fig. 1.—Bony projection. A-B, line of excision.

Various forms of splints have been devised, but usually operative treatment constitutes the only real cure, this being contraindicated only in diabetes, any broken down constitutional condition, and hemophilia. Operation is also temporarily contraindicated in an accompanying suppurative process, such as acute bursitis—inflamed bunion—which should first be treated before operative procedure. Operation is indicated when the hyperthrophy, or hallux valgus, or the bursitis makes protection of the sensitive joint difficult, and in my opinion it should have in view, 1, the correction of the deformity; 2, the prevention of recurrence, and, 3, the preservation of the longitudinal arch.

Several operations have been devised for the cure of this condition. Rowlands and Turner removed the prominent inner half of the head of the first metatarsal bone and sometimes the prominent inner basal angle of the first phalanx, divided the extensor brevis hallucis, and sometimes lengthened the extensor longus hallucis. Tubby chiseled off the prominent head of the first metatarsal bone, divided the ligaments and the extensor proprius pollicis tendon, and replaced the phalanges in position. In cases where the head was greatly hypertrophied and there were marked symptoms of arthritis, he excised completely the head of the metatarsal bone, taking

Fig. 2.—C, capsule; T, tendon of abductor hallucis to be transplanted.

care to remove the projecting spur on the outer side of the first phalanx. The sesamoid bones were also removed, as pressure on them subsequently caused pain. After the operation he advised that a wedge of gauze be worn between the first and second toes. Inasmuch as the intact metatarsal bone is a necessary part of the arch of the foot, he found that these patients must use a valgus plate for walking. Wil-

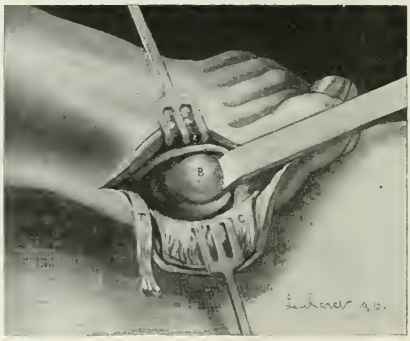

Fig. 3.—B, bony projection; T, tendon of abductor hallucis; C, capsule.

liam L. Keller found that all the old operations for the relief of hallux valgus were unsatisfactory. Resection of the head of the first metatarsal toe, successful in the flat footed individual, injured a normal arch. He devised an operation which sacrificed no part of the plantar articular surface. C. H. Mayo recommended that the bursa be interposed between the joint surfaces after excision of the metatarsal head. In other words, the bursa was transplanted to the space formed by the resection of the articular head of the first metatarsal, the joint surface of the first phalanx being left intact. Von Bergmann resected the base of the phalanx and the head of the first metatarsal. Goldthwait, Painter, and Osgood believe that the Hüter operation of removal of the metatarsal bone is almost uniformly satisfactory when the proper operative technic and aftertreatment have been observed. Henry Ling Taylor advises the use of an elongated, or Thomas heel, or shoes straight on the inner side.

Fig. 4.—T, tendon transplanted and sutured; C, capsule sutured.

If operation is necessary he believes that oblique incision of the head of the first metatarsal is as good as any. Royal Whitman considers that the primary object should be to remove the projecting bone.

He also stretched and divided tissues that resisted a corrected position.

In my opinion, the usual operation of the resection of the head of the metatarsal bone only temporarily corrects the deformity. To prevent recurrence, I devised and found feasible a method of transplanting the tendon of the abductor hallucis from its usual insertion in the plantar surface of the base of the first phalanx to the periosteum covering the middle of the inner surface of the first phalanx. To meet the third requirement of any successful operation for hallux valgus—the preservation of the longitudinal arch—I confined the bone section to the exostosis without resection of the head and followed this by suturing the capsule over the denuded bone area, deep to the transplanted abductor tendon to prevent involvement of the transplanted tendon in the subsequent and inevitable callus. The histories of a large number of cases treated by this operation show that it was rarely necessary to resect the head of the metatarsal bone. After a thorough trial of the various operative methods, this one has given the best results. The simplicity, ease, and safety with which it can be performed in my opinion warrant its trial in these cases. It allows the patient to walk well and absolutely without pain: the great toe remains in perfect position and is naturally mobile, and it does not affect the weight bearing function of the foot.

101 East Eighty-first Street.

A CASE OF DOUBLE STRANGULATED FEMORAL HERNIÆ.

By Wesley J. Woolston, M. D.,
Chicago.

A cursory review of the literature has failed to reveal a case of double strangulated femoral herniæ similar to the following:

Case.—The patient, a woman, was admitted to the night service at Cook County Hospital, April 11, 1917. On the afternoon of April 9th she was seized with excruciating pain in the lower abdominal region. This was followed by vomiting repeated every half hour until the time of operation. The vomitus was gastric and biliary but never fecal in character. Bowels had not moved from the onset. Patient stated that she had never had a similar attack. In fact she had never had any previous illness of any consequence.

The patient was forty-one years of age, had had twelve normal pregnancies, no miscarriages, and a normal menstrual history. She stated that for the past ten years she has noticed a swelling over the left femoral region and that for the past two years she has noticed a swelling over the right femoral region. A belt has been worn on the left side but not the right. The swellings have always been reducible until the present time when neither one can be reduced. Physical examination was negative except for a tumor mass in each femoral region each the size of a hen's egg. They were slightly movable but not reducible through the saphenous opening. The integument was not discolored. The temperature is 97.8° F.; pulse, 104, and the respirations, 24. The diagnosis of double strangulated femoral herniæ was made and the patient was operated on. A cutaneous incision was made on the right side, about three to four inches in length, parallel with the fibres of the external oblique and about one inch above Poupart's ligament. As in the operation for inguinal hernia the superficial epigastric vessels were caught and tied. Retraction of the two sides of the incision exposed the aponeurosis of the external oblique and the external inguinal ring, covered by the intercolumnar fascia. The aponeurosis was divided through the external inguinal ring for the full length of the incision.

Retraction of the lower flap exposed Poupart's ligament while retraction of the upper flap exposed the conjoined tendon. This procedure exposed a space covered by the fascia transversalis. This was then divided and the sac and contents were found to be strangulated in the femoral opening below Poupart's ligament. An effort was made to insert the finger or some blunt instrument into ring in order to cut down on it without danger to the contents but it was without success. The ring was then nicked sufficiently to withdraw the contents which consisted of bowel and omentum. The bowel was quite dark but reacted to the application of heat and it was decided to return it to the abdominal cavity. The omentum showed signs of strangulation, being very much congested, and we ligated that portion of it. The sac was then isolated and ligated in the usual manner. The ring was dealt with by suturing the fibres of Cooper's ligament and the periosteum of the os pubic bone to Poupart's ligament. The wound was closed by the Andrew method, the same as for an inguinal hernia except that the cord was not molested.

The left side was handled in exactly the same manner except that the findings in the sac were different. The tissues as we approached the ring were very edematous and we anticipated a worse condition. However, when we had enlarged the ring and brought the contents of the sac into view we found a large mass of strangulated omentum adherent to the sac in places. This was freed of adhesions and ligated. The strangulation on this side was fully as great or more so than on the right. Our deduction was that the bowel became strangulated first on the right side which caused the patient the pain and the vomiting and the straining from the latter caused the left side to become strangulated, as previously to this time she was able to reduce it. The patient made an uneventful recovery and left the hospital after the usual length of time.

25 East Washington Street.

Endourethral Application of the High Frequency Current.—Ernest Roucayrol (*Bulletin de l'Académie de médicine*, May 22, 1917) employs in the treatment of acute or chronic urethritis due to the gonococcus, which is killed by temperatures exceeding 39° C., straight or curved urethral thermophores consisting of nickeled or silver plated copper tubing in the interior of which are soldered at intervals several insulated wires conducting the current to the thermophore. The other electrode consists of a metallic plate placed beneath the buttocks or over the penis or perineum. An electric mechanism connected with the thermophore, including a galvanometer, is provided to obviate heating of the electrode to such a temperature as would injure the urethral tissues. Each sitting lasts twenty minutes. The method was used chiefly in rebellious, painful cases of chronic urethritis. In forty-four cases of this type, pain uniformly disappeared during the first sitting. Shreds resisting all other procedures disappeared after a few sittings or were reduced to a slight pulverulent sediment, which disappeared completely when the openings of some inflamed Littré's glands were cauterized through the urethroscope. Soft infiltrations disappeared rapidly under the treatment; sclerotic changes, somewhat more slowly. Trophic urethral changes in a case of tabetic urethritis yielded rather readily to the treatment and the preexisting pain, radiating to the prostate and rectum, wholly disappeared after the first sitting. Striking results were obtained in two cases of acute urethritis; more definite conclusions as to this condition will require further trial of the procedure.

Medicine and Surgery in the Army and Navy

THE ROCKEFELLER WAR HOSPITAL.*

Preparedness Perfected.

There was lamentation among a great many who didn't know what they were talking about, when war was actually brought home to the American people, principally to the effect that we lacked the efficiency of the enemy. However, these people have been shown that this accusation was without foundation, particularly as regards the facilities that have been devised to care for and restore to normal life our soldiers and sailors. As when one throws a pebble into a pond the ripples widen, so the first base hospital started the idea for others until we have come to the refinement of the purpose—special base hospitals. Such a hospital has been originated, erected, and equipped on the grounds of the Rockefeller Institute, at Avenue A and East Sixty-sixth Street. It is a military unit hospital of 100 beds for patients suffering from infected wounds, and will serve the purpose of demonstrating the surgical methods worked out and successfully applied at the military hospital at Compiègne, France, by Dr. Alexis Carrel and Dr. H. D. Dakin. The immediate surgical control and supervision of the hospital will be under the personal charge of Doctor Carrel, who has been permitted by the French Government to return to this country for that purpose.

The Carrel-Dakin treatment is a combination of the use of a chemical antiseptic, Dakin's fluid, which is a dilute solution of sodium hypochlorite minus caustic effects which owes its activity to chlorine, and the method of its use devised by Doctor Carrel. This treatment has been pronounced the most notable surgical development of the war; it kills bacteria, exerts a solvent effect on dead tissues, dissolves recent blood clots, eases suffering, and shortens convalescence. Those treated by this method are saved from mutilation by amputation and deformity from badly healed scars or long open wounds. The successful application of this treatment is a matter of the nicest technic in which any trained surgeon or medical man may become proficient in a few weeks. It was with the expectation that many would avail themselves of an opportunity for this careful instruction, which will be given in the form of actual demonstration and practice, that this hospital was erected. Here the method of treating wounds can be practised and the surgical methods worked out and successfully applied abroad will be demonstrated.

Dr. Simon Flexner stated that there were three objects in this enterprise: "1, to make available to the patients this improved method of treatment; 2, to demonstrate and teach to American physicians who may be enrolled for military service measures for the treatment of infected wounds especially by the Carrel-Dakin method; and 3, to test the feasibility of a unit portable military hospital, designed by Mr. Charles Butler, of New York, who, working under the French War Department, has made a thorough study of the military hospital units which have been developed for use in France and England." A fund of $200,000 was appropriated by the Rockefeller Foundation for the purpose of making the plan possible financially. The surgeons general of the Army, Navy, and Public Health Service, the executive officers of the Red Cross, and the National Research Council all expressed deep interest in the plan. Successive groups of surgeons will be assigned to the hospital by the surgeons general to study the method and to learn in about four weeks by practical application the proper technic. The hospital is now ready to receive patients suffering from infected wounds received in industrial or street accidents, and all infective processes, such as abscesses, suppurative conditions, etc.

There are fifteen buildings grouped together in compact form, surrounded by screens of green hedges and trees veiling them from the street, each easy of communication with the others by way of slatted walks, differences of grades being taken up by inclines. This makes feasible the transport by wheeled vehicles of food, linen, laundry, stretchers, etc. With the exception of the stores building, which is of ordinary shack construction, the buildings are of portable house unit construction, walls, floors, and roofs being formed of panels. The walls, roofs and floors are double with an air space between the outer and the inner sheathing. The Humphreys system of construction has been adapted with modification or improvement in the form of steel trusses and the type of windows with the lower sash fixed and upper sash hinged at the bottom to swing in, having check pieces to prevent draughts. There is ample window and door space in each ward.

The administration building, which is connected with the laboratory, contains the offices of the chief surgeon, surgeon on duty, superintendent of nurses, executive officer, and clerks, the telephone exchange, the visitors' waiting room and a cloakroom and toilet. The laboratory building contains a room for demonstration and lectures, record officer's room, storage and coat room, a fully equipped pharmacy, an orderlies' waiting room, and bacteriological and chemical laboratories, complete in every detail. The very complete power plant of the Institute itself is used for the steam and electricity required and city gas is used in the laboratory instead of the lamps usually necessary in a base hospital. The water supply and sewage disposal are of course adequate owing to the location of the hospital well within the city limits. The receiving and discharging building has a storeroom for patients' clothing and property. Here the ambulance brings the patient, who is undressed, washed, and put into hospital clothes; his pedigree is taken, very careful records of his progress being kept in most adequate files. At discharge, the patient returns to this building, surrenders his hospital clothes, secures his own, which have been washed or disinfected, and collects his other property. First aid supplies are

*Credit is given to the memorandum prepared by Mr. Charles Butler, the architect for this hospital, with thanks for permission to use it.

kept in this building which are used when necessary by the surgeon on duty.

The operating pavilion is 105 feet long by twenty-eight feet wide with walls ten feet high. It is ideally lighted from the north. This building also contains a large workroom for nurses, a sterilizing room, an anesthetizing room and an x ray room with space for the demonstration, storage, and dark room. There are two wards, each containing twenty-four beds with the possibility of increase to thirty without crowding and with the bed spacing independent of the windows, owing to their construction. Each ward contains a quiet room with one bed, and there is a small isolated pavilion with four beds for contagious diseases which may develop after admission. The special steam kitchen and laundry seemed essential though they are of minimum capacity. There is a large terrace with screens and awnings on to which the patients' beds may be wheeled to their increased comfort and the hastening of their convalescence. Each ward contains a nurses' office and linen room from which, through a window, the ward and the isolation room may be surveyed at all times. Easily accessible to this is the diet kitchen with electric cooker, steam table, sink, and refrigerator. Beyond this are bedpan sink, the patients' toilets and lavatories, a sterilizing room, bathroom, and the housemaid's sink room with implements for cleaning. All dressings are made in the wards, so that it has not been necessary to provide a surgical dressing room. Easy exit in case of fire has been provided by two hinged panels at the side of the wards which swing out in an instant's manipulation.

There is a mess hall with one end for nurses, the other for orderlies and maids, and a recreation building for convalescent patients, which contains a small library and resting and reception rooms. The labor required for the constant transport of food and cleaned and soiled linen has been reduced to a minimum by grouping the kitchen and laundry in close proximity to the mess hall and the ward buildings. The wide separation between the ward buildings and the quarters reserved for nurses, orderlies, and maids, insures quiet to the patients from the normal activities of their attendants when off duty. The kitchen contains a checking office with vegetable storage space adjoining. On one side of the refrigerator is the grocery and milk room with the meat room on the other. The equipment is a marvel of completeness; there are steam kettles, vegetable steamers, and cereal cookers of the most approved design. On one side of the kitchen is the vegetable preparation room and on the other the bakery. All china

FIG. 1.—War Hospital of the Rockefeller Institute, New York. A portable war hospital of fifty beds comprising an acre of buildings erected at Avenue A and Sixty-fourth Street, New York. Every few yards of the structures have a movable section of wall which affords a bomb exit in case of fire from bombs.

is brought back from the wards and mess hall to the dishwasher. The food cars remain in the kitchen between meals, picking up their loads at the cooks' tables, tea and coffee urns, and the pantry table. The laundry has two receiving rooms, one for ordinary soiled linen, the other for the arriving patient's clothing, infected linen, and bedding which pass through the sterilizing washer or the steam and formaldehyde sterilizer. There is storage room for mattresses, pillows, and linen, a mending room, and a small clothing storage room. There is a small office for the storekeeper in the stores building, which is equipped also for work in carpentering and painting.

The nurses' and the maids' buildings are similar. As these are their living quarters, they are supplied with single and double bedrooms, a small sitting room with electric cooker and pantry, baths, toilets,

slop sink, and linen and store closets. The orderlies' quarters are divided into a large dormitory with a few rooms for sergeants, a sitting room, and a room for cleaning boots, equipment, etc. The plumbing is standard; the electric wiring is exposed throughout; the heating is by pipe coils; the hot water supply furnished by steam coil tanks There is a complete intercommunicating telephone system and a fire alarm system with watchman's clock, while hydrants and fire extinguishers are placed in convenient locations within and outside the building. There is also a portable ice machine.

It is impossible to express with too high commendation the value of this enterprise. The erection of the buildings was started on June 1st and they were completed on July 13th. Patients are now being treated and the classes for special training have been opened, physicians from all parts of the country having availed themselves of this opportunity to learn the correct method of administering the Carrel-Dakin treatment, which has accomplished so much abroad. This is essentially a preparation for war, but infected wounds are received in other places than the battlefield, and the possibilities for this treatment are far more extensive than any use to which it has yet been put. This is a hospital in which man, woman, or child may be allowed to give Nature a chance to restore the body and tissues to normal, undeterred by microbes and their toxins. Industrial accidents, lacerations, comminuted fractures, extensive trauma, and diseases in which there is suppuration have lost two thirds of their terrors: convalescence now means merely rest and inactivity in bed, with no annoying secretions, no unpleasant odor, and but little disturbance in general health.

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FIG. 2.—Alexis Carrel, L. B., Sc. B., M. D.

Certainly, the Rockefeller Foundation and those engaged in the work of this hospital have availed of an epoch making opportunity of the greatest possible benefit to humanity.

MEDICAL NOTES FROM THE FRONT.

Typhoid in Vaccinated Soldiers—Two Peculiar War Wounds—Treatment of Penetrating Wounds of the Chest.

GENEVA, *July 8, 1917.*

An important question in the medicine of warfare which has given rise to much discussion and careful study is the occurrence of typhoid fever in vaccinated soldiers. If the term typhoid fever is accepted in the purely clinical sense, therefore including not only infection by Eberth's bacillus but paratyphoid as well, one will frequently come across patients in epidemics who have been previously vaccinated, no matter what vaccine has been employed. It is also important carefully to set apart cases of typhoid fever in subjects who have been vaccinated with a sufficient dose of dead bacilli and in whom a sufficiently long interval has elapsed since the vaccination, from those cases which develop soon after a hasty vaccination has been done. In the first class of cases, when vaccination is done properly, the infection assumes a very mild type, but is often accompanied by relapses, although such instances may very likely be cases of paratyphoid. However, the value of the vaccination is proved by the absence of serious symptoms and no mortality. This possibility of long illness placing a number of soldiers out of commission still makes it desirable to perfect the technic of paratyphoid vaccination and indicates that more frequent revaccination of typhoid is in order.

In the second class of cases, when the typhoid occurs shortly after a hasty vaccination, the clinical aspect of the infection is much like that of an unvaccinated subject, but generally speaking, the gravity is less the longer the lapse of time between the beginning of the febrile manifestations and the injection of the dead bacilli. In other words, the injection appears to weaken the organic defense when it is given at a time when the dissemination of the virulent living bacteria has already taken place in the body. On the contrary, it fortifies the defense of the organism when it is given before the living bacilli have had time to drain upon the system.

A distinction can be made between typhoid fever occurring after a single injection of five millions of bacilli, from that succeeding two injections, the first of five millions, the second of 1,000 millions. The typhoid cases of the first group are the most numerous, because the injection has been rarely given at a time when the organism was only incompletely invaded by the specific bacillus, so that the evolution of the infection does not appear to be in any way modified by the attempt at vaccination. Usual-

ly the subject is vaccinated during the incubation period and reaction following the injection is almost always absent. Serious cases occur in this class, but when a subject has been vaccinated eight or ten days before the first rise of temperature, the case usually runs a mild course and few severe instances are noted.

In all patients, the disease offers two types of development. One is a period of perfect health existing between the time of vaccination and the beginning of the typhoid; in the second this period is marked by a series of minor disturbances in health. The existence of this incubation period which has been clinically proved in men who only become really ill more than two weeks after the injection of the vaccine, clearly leads one to assume that the injection was given to subjects already the hosts of the specific bacillus. The attentive study of certain epidemics clearly shows that there are undoubted cases of latent eberthism and instances of very mild infections go to prove what has just been said. Cases of typhoid are much less frequent after four weeks from the date of vaccination; the evolution is of medium intensity and the patient reacts as if no vaccine had been given. Following two successive injections, it seems to be probable that when the second injection has been given during the incubation period of a typhoid, the prognosis of the disease is not so good. The prognosis is far better if the second vaccination has been given from one to three weeks before the commencement of the typhoid. The majority of cases begin about a fortnight after vaccination, and in some during this lapse of two weeks certain minor disturbances are complained of, and it would seem as if the vaccination had been done in latent hosts of living virulent bacilli. After the lapse of a fortnight, the number and intensity of the cases of typhoid decreases. The patient seems to be vaccinated, but insufficiently so, but it is quite possible that the patient has, in reality, a paratyphoid.

From actual observation it would seem as if the introduction of dead bacilli into the organism tends in the first place to take possession of the natural defenses of the organism so that a large dose of vaccine is injurious if living bacilli are already existent in the body. Later on, the vaccine causes the elaboration of protective properties, and at this phase infection from living bacilli not only has to face the natural defenses of the body, but the acquired ones as well. In practice, therefore, massive doses of vaccine are not to be recommended if an epidemic has broken out, because they leave the already infected subjects without protection. It is better to inject repeated and progressively increasing doses which soon reinforce the defenses of the organism without first seriously weakening them. Therefore, when an epidemic has developed fractional vaccination is the proper method. Generally speaking it may be said that subjects who have been methodically vaccinated some time before are not completely protected against the syndrome of typhoid, but they go through a mild form of the disease. Perhaps they may be suffering from paratyphoid and it is possible that anti-paratyphoid vaccination might be the means of less illness. Subjects vaccinated with massive doses while an epidemic is in full blast will probably have a mild case if they acquire the disease, or the gravity will be attenuated, unless the vaccination is done at the beginning of the typhoid.

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FIG. 3.—Interior of ward in Rockefeller Institute portable war hospital. All the windows open inward at the top and provide a maximum amount of light and air.

* * * * *

Some cases of war surgery have given rise to most extraordinary discoveries, while the receipt of an injury occasionally occurs under peculiar cir-

cumstances. A young officer was brought to Ambulance No. ——, with a large abdominal wound seated in the right subcostal region, through which the right colic angle protruded. This was reduced and then a laceration of the gallbladder was seen along with quite a good sized wound on the anterior border of the liver. The wounds were packed with gauze and a rubber drain inserted. Shortly after, a counter opening in the right lumbar region was made for more complete drainage of the bile. Some time later, while searching for the projectile with a radioscopic screen, a metallic body was seen in Douglas's pouch. Laparotomy was done for the removal of the supposed projectile which, in reality, was found to be six twenty franc gold pieces stuck together. There was no trace of any projectile, as it had made its exit through the lumbar opening. Recovery was so complete and rapid that at the end of three months this officer was ready to return to the front.

The second case that I shall mention was that of a soldier, twenty-two years of age who, more preoccupied by the necessities of hygiene than by the dangers accruing from the close proximity of the enemy, left the trench during the night to satisfy a physiological desire. By the beautiful moonlight he was seen by some Hun in the crouching position and received a rifle bullet which went through both buttocks from left to right, passing across the rectum, as two bullet openings in the walls of the gut could be felt by the exploring finger. The exit opening of the bullet in the right buttock was gaping and the size of a silver dollar, while the rectal opening on the right readily admitted the index finger. The openings in the left buttock and left rectal wall were punctiform. By proper incisions and drainage this soldier recovered so well that he returned to the fighting line three months after his injury had been received.

* * * * *

I would like now to say a few words as to the present status of the treatment of penetrating wounds of the thorax. In one ambulance service at the front, out of a total of twenty-four cases of thoracic injuries by rifle bullets there were four deaths and twenty recoveries, and nine cases of chest injury resulting from bursting shell or shrapnel there were five recoveries and four deaths. When all is considered, I feel that it is safe to say that the gravity of the case is greater in penetrating wounds of the thorax from bursting shell since the mortality is about forty-four per cent., while that from rifle bullets is sixteen per cent. These, of course, are the immediate results obtained in an ambulance near the firing line. If one follows the many discussions on this question which have taken place at the Surgical Society of Paris, it at once becomes apparent that the results obtained by various surgeons in penetrating chest wounds are most varied and cannot be compared. The majority of statistics offered have been those of base hospitals, where patients arrive after having enjoyed a prolonged treatment and prolonged rest.

With few exceptions the cases which are sent to the base hospitals with complications are simply examples of late complications and not primary complications. The series of thirty-eight cases reported by Dupont and Kendirdjy, for example, represents a fortunate one, which had been expurged before the arrival of the patients at the ambulance. In this total of thirty-eight cases of penetrating wounds of the thorax, thirty-seven were due to rifle bullets, while only one resulted from shrapnel, and this accounts for the only death which occurred. Lenormant's statistics are probably nearer the reality. In a total of twenty-nine cases, twenty were due to rifle bullets and nine to bursting shell or shrapnel with six deaths.

Comparison with recent wars as far as present results are concerned is out of the question, and Phocas is undoubtedly right when he says that in the Greco-Bulgarian war, at the ambulance he directed at Athens, he had seventy cases of wounds of the thorax, only one of which necessitated an operation for empyemia, while some of the others merely required puncture. Phocas questions whether this benignity was apparent or real, but he suspects that the really serious cases of thoracic wounds did not reach Athens. He is of the opinion, however, that wounds of the thorax by projectiles act in much the same way as wounds of the same type met with in civil practice and are governed by the same laws. They are either beyond any hope from the onset or are benign to the extent that they are recovered from by expectant treatment and rest.

(*To be concluded.*)

MEDICAL NEWS FROM WASHINGTON.

Conversion of the Havana into a Hospital Ship—Otolaryngologists and Ophthalmologists Plan Service—Uncommissioned Army Surgeons to Be Commissioned—Recommissioning Medical Officers Whose Services Have Been Honorably Terminated—Plans for Sanitary Corps—Estimates of Appropriations for Public Health Service for the Coming Year.

Washington, *August 6, 1917.*

The Ward liner *Havana,* recently secured by the Navy Department for use as a hospital ship, is considered easily adapted to that service, and the work of conversion already is under way. While the accommodations to be available depend to some extent upon the alterations, it is believed that it will be possible to provide some 300 beds. This hospital ship and another one to be obtained undoubtedly will be assigned to the Atlantic Fleet.

* * * * *

Under the direction of the General Medical Board of the Council of National Defense, the subcommittees on otolaryngology and ophthalmology have sent out to practically every eye, ear, and throat specialist in the country a questionnaire to learn their willingness to enter the medical service of the military establishment if a call were made for them. Both committees report that they will have a sufficient number of men to meet the needs. With the idea in view that injuries to the head seldom involve only one structure, the subcommittee on ophthalmology determined some weeks ago to join action with the subcommittee on otolaryngology for the purpose of devising the best means of bringing all head subjects under one section. To bring about this result, the executive committee added to the personnel of the subcommittee

on otolaryngology an oral surgeon, and to the subcommittee on ophthalmology a brain surgeon. These subcommittees, acting as a joint body, have made an exhaustive study, and as a result recommended to the surgeon general of the army the advisability of the establishment of sections in surgery of the head in the base hospitals. Major T. C. Lyster, Army Medical Corps, was assigned to make a thorough study of the whole situation.

A bill recently introduced in the House by Representative Nolan, of California, provides that all acting assistant surgeons and contract surgeons of the United States army who have served under standard contracts in accordance with the army regulations and under orders of commanding officers with troops in the field at army posts in United States general hospitals, or who performed whatever duties required of medical officers under the orders of superior authority, and who were not commissioned in the United States Medical Reserve Corps at the time of the passage of the bill, shall be commissioned first lieutenants in the Medical Reserve Corps, the date of commission to be as of the date of entry into the service as an acting assistant surgeon or contract surgeon. It also is provided by the bill that the surgeon general of the army shall have authority to recommend for commission for active service in the Medical Reserve Corps in case of necessity any physicians who have served as commissioned medical officers in the volunteer service of the United States, in the national guard or militia, or any acting assistant surgeon or contract surgeon who served for a period of at least three months and whose services have been honorably terminated, provided they are mentally and physically qualified to perform the duties required of them.

* * * * *

Under the terms of the act of May 18th, which authorizes the President temporarily to increase the military establishment, orders have been given for the organization under the Medical Department of the army for the period of the existing emergency, a sanitary corps consisting of commissioned officers proportionately distributed among the several grades as in the Medical Corps now established by law, and such enlisted men as the secretary of war may determine to be necessary. The total number of officers in the corps will be approximately equal to, but not exceed, one for every 1,000 of the total strength of the military forces authorized from time to time pursuant to law. The officers of the corps will be provided by assigning officers of the Medical Reserve Corps thereto or by appointment of officers of the Medical Reserve Corps, or of citizens of the United States that are found under the regulations established by the secretary of war to possess special skill in sanitation in sanitary engineering, bacteriology, or other sciences related to sanitation and preventive medicine, or that possess other knowledge of special advantage to the Medical Department. There will be no grade in the Sanitary Corps above that of major, and no officers of the regular Medical Corps will be appointed to the Sanitary Corps. The number in the several authorized grades in the Sanitary Corps will be proportional to the number authorized by law for the corresponding grades of the Medical Corps.

* * * * *

The secretary of the treasury has approved and transmitted to Congress supplemental estimates of appropriations required by the Public Health Service for the fiscal year ending June 30, 1918. The first item of $100,000 is urgently needed for additional commissioned medical officers, in order to carry out the various acts of Congress, imposing certain duties on the Public Health Service. The immigration act approved February 5, 1917, now requires that the alien crews of all vessels arriving in the United States shall receive a thorough physical examination. These examinations necessarily will have to be made on board ship, and will require all of the additional commissioned medical officers asked for. At some ports the law now requires not only that there shall be not less than two medical officers to make examinations of aliens, but also that the medical officers shall be men of special training and experience. Formerly neither inspection of crews nor the double medical examination were required. On account of the war, the service is rapidly losing a number of acting assistant surgeons, who have gone into the military service, and their places must be filled by regular officers in the immediate future. Fifteen commissioned medical officers of the Public Health Service now are serving upon coast guard vessels in the navy upon outside patrol duty on account of the war. In addition to this, thirteen commissioned officers are on duty with the navy in a sanitary capacity. Furthermore, some of the experts of the service are making sanitary surveys of the sites and vicinities of places proposed as cantonments for the military forces.

Another appropriation asked for is $300,000 for use in connection with the cooperation of the Public Health Service with state and municipal health authorities in the prevention of the spread of contagious and infectious diseases in interstate traffic, and this is particularly required on account of conditions incident to the war. The assemblage of large forces at different places throughout the country constitutes a potential danger to the health of the civil population. This is shown by the presence already of outbreaks of cerebrospinal meningitis here and there in the military reservations, outbreaks which have had a tendency to spread to the civil population.

A third item, of $559,270, is for increased maritime quarantine facilities on the Atlantic coast. It is of military necessity, in that the various maritime quarantine stations must be so prepared and equipped as to avoid the detention of vessels returning from across the sea with sick and wounded; should quarantinable disease appear on board. Should an infected vessel arrive at quarantine, the station should have ample equipment and capacity for the housing and care of the personnel, thus releasing the vessel for further use after disinfection. For this purpose additional barracks are required upon sites already provided, together with equipment, utensils, increased tentage, bedding, etc., to meet any emergency that may arise.

Editorial Notes and Comments

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A PRAGMATIC RENOVATION OF SURGERY.

True modesty is a wholesome quality inspired by a working contact with reality. The phantasy world, however, lures workers away from the application of this quality to actual conditions of need. The comparison of two important branches of practical science illustrates this. Professor Miller, of the University of Wisconsin, has called attention, in an address to that institution [*Science*, June 1, 1917, ix, 7] to the departure of mathematics from its original practical simplicity and its endowment with properties from the unfathomable depths of the phantasy life—that of unreality desire—and he declares that the consequent loss of modesty created a "difficulty which still pertains in our use of drugs and the knife."

This is the very keynote of the address which Doctor Bevan delivered as chairman of the Section in Surgery at the recent meeting of the American Medical Association. [Problem of Unnecessary Operations and of Incompetent Surgeons, *Journal A. M. A.*, July 21, 1917, LXIX, No. 3.] With clear cut and emphatic repetition he drives home certain facts whose fearless consideration should restore something of that lost simplicity of modesty and pragmatic common sense to a science which also has been led astray into a certain fetichism. This is the expression of an elusive and obscuring coloration of phantasy, resulting in egoistic projects which are quite foreign to surgery's essentially practical service.

He lays emphasis upon the realities of actual surgical accomplishment and the earnestness and honesty of the medical profession at large, of a vast number of surgeons who are eradicating physical ills. No less, however, does he emphasize the need for a growing interest and a more thorough, regulated study of the surgical problem, with its difficulties as well as its manifold possibilities of service. For this reason he drags into the light the three causes which he considers at the bottom of much unnecessary and unjustifiable surgery and of the many operations performed by unqualified men. "Ignorance, dishonesty, and bad judgment, sometimes bad judgment amounting almost to an obsession," may all be grouped under the obsessional category. He goes on to do this when he sets up the ideal surgery as merely the practice of common sense over against "surgical tangents and obsessions." These latter arise from that great unknown which surrounds every science through the individuals who comprise the scientific body. We are growing familiar through the newer psychology with the egoistic impulses and the distortions through which they disguise themselves from common sense, which we are coming to believe make up this great unknown out of which such personal tangents and obsessions arise; unknown as such and therefore dangerous. Since it is so, it behooves the medical profession to begin to understand these things and to see where unconscious blindness destroys the evaluation of one's own theories of surgery and one's own rash or tangential desire to perform it. Doctor Bevan's remedy for this evil is that which fits the correction of this blindness of overindividuality in all spheres of human activity. He suggests that surgical problems should be submitted to a joint study which should include the competent opinion of specialists in every province of medicine. This would make the surgical question not only theoretically but practically a moral and an educational one.

This is the reference of the individual point of view, preference, selfseeking, anything which may go astray left to itself, to the medical group, the herd, where alone in the field of pragmatism ad-

vancing criteria are to be established. Here then in the test in this larger society, comprised of those whose careful attention is directed to problems of health, there would result a limitation of meddlesome surgery and a submission of much that is rushed to the knife to some other more rational probing after causes. Research has already discovered that these lie far deeper many times than the reach of the knife and therefore are aggravated through subtle association rather than helped by such interference. Even the very concept of disease has too long been subject to a "cutting out." A new conception of the intricate unity of mind and body in one energized personality has no place for such a point of attack. Freeing the pragmatic attack upon disease from the confusing interpretations which arise from unconscious phantasy expressed in personal prejudice and overconfidence, we must yet take them into consideration in the complex of disease syndromes, for they are largely the cause of disease. Surgery has its service to perform in some of the end results but it can no more "cut out" epilepsy, for instance, by a release of eye muscles, removal of ovaries, the teeth, or, relic of ancient barbarism, the severing of the inoffensive gut because of its peculiar function as a passage for waste matter, than the whole of life's well directed effort, which is health, could be expressed in the terms of one narrowly limited accomplishment. Surgery is part and an important part of the problem of healthy utilization of energy. Therefore let it seek conscientiously for its true place in the light of the broader concept and to that point direct its indispensable service.

THE DANGERS OF RHUBARB.

The time of the year when the tired business man dreams of trout pools, golf links, tennis courts, and campfires; when the small boys see through and beyond the blackboard into a world of marbles, circuses, and freedom; when the poet bursts forth into song and a livelier iris changes on the burnished dove—in short, the vernal springtime of the year was in the good old days also the time when our mothers dosed us with sulphur and molasses, sassafras, or whatever other spring tonic the family pharmacopœia proclaimed as beneficial. Later on we rebelled against being medicated willy nilly, but we partook for a long time of the family superstition which recommended the consumption of certain vegetables as being "good for the blood." Among these therapeutic treasures rhubarb held a high place. Whether stewed or prepared in other ways, this plant has been held in high esteem. Certainly no one would suspect that danger lurked beneath such an innocent exterior as that which rhubarb leaves present to the world, but this has been the case.

A distressing instance occurred in England recently. A minister partook of rhubarb leaves cooked in water, to which had been added cooking soda for the purpose of neutralizing the acidity and rendering unnecessary the addition of sugar. This had evidently produced calcium and potassium oxalates in considerable quantities as autopsy showed oxalic acid in the viscera and no other poison. The fatal dose is given in some textbooks as sixty grains, but is probably much lower than this; in fact a case has been reported of serious symptoms from one and a half grains, symptoms which were only checked by prompt treatment. The soluble oxalates, potassium and sodium, are just as poisonous. The best antidote is chalk which forms an insoluble calcium oxalate. A pinch of powdered chalk added to the rhubarb leaves would have rendered them perfectly innocuous.

Truly nowadays Death assumes protean forms. He creeps over the battlefield in a choking, nauseous stench; he bursts forth in liquid fire; he rains down from the clouds, and he lurks in rhubarb leaves. The chemistry of cooking is indeed sadly neglected. There is an old story of a Chinese cook who had only to see a dish prepared once and he was letter perfect. On one occasion the mistress of the house, while showing him how to prepare a certain dessert, found that the first egg she broke was bad and threw it away. Ever after when the Chinaman prepared this dish he broke an egg and threw it away. Many cooks who smile at this story are really not much more intelligent in their cooking than the Chinaman. They go ahead following the same routine in cooking year after year, never knowing what the chemical constituents of various food products are, never appreciating what changes heat produces in organic compounds, and attributing the gastrointestinal disturbances which occur from time to time in the household to the mysterious visitations of an inscrutable Providence. Let us by all means have more knowledge of what we are consuming day by day, especially at the present time when economy and public health are both indispensable.

MENINGEAL REACTIONS IN CONCEALED OR ATTENUATED FORMS OF ACUTE CEREBROSPINAL MENINGITIS.

The acute cerebrospinal meningitides readily give rise to abnormal types of the affection, the concealed or attenuated forms being the more commonly met. These abnormal types exist in primary

cerebrospinal meningitis due to the meningococcus or other varieties of microbes, such as the pneumococcus and divers kinds of cocci. In secondary cerebrospinal meningitis of microbic origin, the abnormal types may also be encountered and very frequently lumbar puncture in these attenuated cases will give incomplete formulas of the cerebrospinal fluid.

There is a group designated by the term meningeal reactions, with a concealed or attenuated symptomatology, whose origin, whether infectious, toxiinfectious, or toxic, is difficult to ascertain. The comparison of these meningeal reactions with attenuated meningitis shows, however, that all these clinical types differ only in degree. Clinically, they cannot always be distinguished, but the divergence in the results of lumbar puncture proves that the following data are to be taken into account in their pathogenesis, namely, 1, the nature and intensity of the irritating agent; 2, the route of penetration taken by and arrival in the meninges of this agent; 3, the action of the agent on the meninges and particularly on the underlying nervous centres; 4, the very varied lesions to which it gives rise; 5, the susceptibility properly belonging to the nervous centres according to the given case, and, 6, their possible irritation independent of any meningeal lesion.

If these data are examined, the conclusion arrived at will be that there are, besides infectious meningitis properly speaking, many varied states of the meninges. Some of toxic origin, such as uremia, eclampsia, saturnism, etc., are worthy of the name of toxic meningitis. The others, whose nature has not as yet been distinctly established, which in all likelihood is of toxiinfectious origin but due to an attenuated toxiinfection, are what have been called meningeal reactions. In reality, they are nothing more nor less than meningitis of very mild type, the result of a temporary irritation of a low intensity; in other words, an incomplete meningitis. There is also what has been called meningism proper which is attributed to reflex action and toxins, but of which little is really known; its importance is losing ground. From these meningeal states, which always produce a simultaneous excitation of the nervous centres, are to be distinguished the reactions of the cerebrospinal fluid, when there is no clinical evidence of meningitis; these may be compared to the humoral reactions in general, although one must take into account the particular characters due to anatomy and physiology.

At the present time the results of lumbar puncture are not always sufficient to affirm the diagnosis, and while awaiting further researches on the biochemical properties of the cerebrospinal fluid which shall show the nature of the divers meningeal processes, one must rely upon one's diagnosis, on prognosis and therapeutic results, and on a detailed analysis of the symptoms and etiological data, all these being important elements which laboratory examinations cannot always furnish.

THE ANNALS OF MEDICAL HISTORY—A NEW AVENUE INTO THE PAST.

The immortal value of the past and the measure of its availability for present use have been nowhere more impressively and compactly formulated than in Bergson's *Creative Evolution*. The past as he conceives it is no longer a relic reverenced by the antiquary, but is in itself a part of that stream which ceaselessly flows on through the present to create the future. The new publication, *Annals of Medical History*, which has recently appeared from the medical press, gives promise of being infused with a true spirit of progressive evaluation of the storehouses of thought, attainment, even of the mistakes and seeming follies of groping effort which lie behind the present day science.

This first number is already warm with the attraction of that great past which "streams behind us . . . pressing at the portals" of the present of medical interest and practice "seeking to join it." Indeed one sobering reflection which is gathered from its perusal is not entirely unfamiliar, namely, that present thought and custom, even in so advanced a science as medicine, are yet strangely intermingled with and dependent upon the most remote customs and beliefs. These are in part the fetters of a magic interpretation of facts, and more yet a mystical fear of certain unknown elements or blind dependence upon them, rather than an applied direction of energy upon actualities in the sphere of sickness and health. On the other hand such an interrelation with the past furnishes life with meaning and full synthetic purpose, and to these the *Annals* will serve to give access. They are evidently to stand at the gateway which joins past with present, there to draw out from the rich inheritance of medical history that which will set value to medical research in its continuity and further the useful work of medicine for the present and the future. As consciousness must necessarily narrow its field in each application of itself to the affair at hand for the moment, so medicine in its definite attack upon each separate problem presented in clinic or laboratory appears to be focused upon its limited object. It is the retrospective view which gives it its mutual setting

in a world of a multitude of interests, none of which can be separated from the others. In the past medicine finds its relative value and is in turn enhanced by that interweaving with all other human interests in which alone it rediscovers its own place. For this reason there is fundamental interest about studies into the mysteries of the Greek beliefs concerning death and the Chthonian deities and the rise of medicine from these earlier cult beliefs and practises. Aside from the scholarly presentation of the material there is a suggestiveness in the earlier beliefs and the therapeutic measures which grew out of them, in which the thoughtful mind can read much of the unending human struggle and reaching out for health and productiveness as the expression of life itself. The slow progress toward clearer light and more exact knowledge shows itself in the outstanding figure of Girolamo Francastora who in the early sixteenth century brought to bear upon the subject of infectious disease a straightforward investigation based upon accumulated clinical data, assimilated and discussed by a thoughtful and philosophical mind. At another time medicine enjoyed the spirited support and stimulus of Voltaire's intellectual acumen and ability to collect much information and knowledge. The early days of the American Colonies contribute something in the history of medical practice, and the deep religious fervor which existed among the ancient Hebrews portrays the close relation of health getting with the deepest impulses of the soul.

The study of a peculiar type of deliberate murder for the sake of mercenary profit in providing cadavers for anatomical study, presents another phase of the human problem, one peculiar in its psychology to no particular age nor race. The energic concept, which the reader likes to feel is the genetic tenor of this new publication, seems, however, to have failed here in the author's summing of his findings in this study. Distribution and redistribution of dynamic energy as the explanation of life's trials and failures and its crimes could not say so conclusively as it is said here: "Men are born, they do not become murderers," and that there is one quality lacking, which is their moral sense. Yet all this material which is to be presented must open the way not to a mere understanding of the past in its historical preservation, but must stimulate and enlarge the understanding of just such an all embracing concept of energy. This moves through all human society in efforts after medical knowledge and advance, and gives it no small expression of itself. All this material moreover aids in understanding each individual problem, criminal psychology as well as religious aspiration, intellectual craving for knowledge as well as health seeking and progress in strictly medical lines. Thus past and present are revealed as one.

THE DETERMINATION OF VISUAL ACUITY.

Probably none of the senses is so important to the human economy as vision. The greater development of mechanical aids to vision over that of aids to the other senses bears witness to the greater visual needs of civilization. Indeed, it is said that civilization is visualization. In nearly every one of the human endeavors vision is of the highest importance. This is so important in military life that only the least amount of deviation from the normal is allowed in those who would engage in that life. Ordinarily visual acuity is taken as the index of the distance one can see from the eye. Strictly speaking, however, visual acuity refers to the clearness of vision without regard to distance. Vision lacks acuity when at no distance from the eye can the object be seen clearly. In such a case the visual condition is pathological, and is not affected by corrective appliances. In visual defects of refractive origin there is usually some distance at which there is acute vision, and this distance can be lengthened or shortened by appropriate lenses.

However, if the distance requirement is the important element in the examination—and for this the Snellen or other card tests are used—it is important that the type, the background, and especially the illumination, be uniform; otherwise the results of the tests will vary greatly. Thus far there has been found no correlation between illumination and visual acuity for which correction could be figured out according to the deviation. While proper illumination of the test cards will improve the distance acuity, an illumination greater than the normal requirements seems to have no effect in increasing the distance. Results in the visual examinations are bound to vary unless a standard scientific illumination intensity is maintained. Unless so maintained individuals with the same degree of acuity will receive different ratings according to the degree of illumination maintained. In this way much injustice may be done. For examinations on a large scale where uniformity is essential artificial illumination must be used, so protected as to prevent glare into the eyes of the man examined. An eight to ten metre candle light is taken to be equal to seventy-five per cent. of daylight illumination. For purposes of illumination, however, an eight metre candle light is low illumination, and forty metre candle light is very high for ordinary pur-

poses or for uncolored illumination. Whatever power is selected it must be uniformly used to obtain uniform results. It must be borne in mind, further, that white illumination gives the most acute vision; next is red, then green, then blue. At best, the light question is still open to discussion.

The visual acuity evidenced by the test types may be a technical determination, but it is not a practical one. In the last analysis no one can tell what an eye will do until it is put to practical test. There are so many extrinsic factors that influence visual acuity, such as familiarity with the subject, the aid of other senses, illumination, etc., that it is never safe to make other than a technical determination. At best the Snellen test type and similar tests for distance or astigmatism are very crude indeed. They cannot be final where the subject has a special interest or desire to get a low rating for vision or for the degree of astigmatism. The more scientific and accurate methods lie in the use of the retinoscope for the determination of the nature and the degree of refractive error for distance and the ophthalmoscope and the ophthalmometer for the determination of the degree and the variety of astigmatism. Of course, the ophthalmoscope will betray the presence of pathological conditions in the eye. Nearly every one can apply the type tests, but it requires a degree of skill to apply the ophthalmic instruments. These instruments cannot be used on large scale examinations, but they can and should be used to check up the doubtful cases. The test types can be used to determine those who have normal distance acuity. The instrumental tests can be given to all who fail in the test type.

News Items

A Pharmaceutical Corps for the Army.—Representative Edmonds, of Philadelphia, has introduced into Congress a bill which provides for the establishment of a pharmaceutical corps within the Medical Department of the Army, the director of the corps to have the rank of major. The bill has been referred to the Committee on Military Affairs.

Metabolism Experiments.—The Carnegie Institute, of Boston, is planning to conduct a series of experiments to determine whether men and women cannot maintain their powers on smaller rations than has hitherto been accepted as a minimum. The Battle Creek Sanitarium has just finished a metabolism experiment lasting forty-five days, with ten subjects, for the purpose of determining the effect of different diets on the chemical composition of the blood. The results are being tabulated and will be published later.

Red Cross Naval Hospital.—The American Red Cross Society has established at Philadelphia for the use of the navy the first general Red Cross hospital in this country. The city of Philadelphia had condemned the building and grounds of the Medico-Chirurgical Hospital in order that a boulevard might be cut through its grounds. The usefulness of the building, however, was not seriously interfered with, and Philadelphia offered this hospital to the Red Cross for the duration of the war. It contains about 250 beds.

An Outbreak of Diphtheria at Newport.—A quarantine for five days was established on August 3d over Forts Greble and Adams and the naval training station as the result of an outbreak of diphtheria in Newport, Portsmouth, and Middletown. Thirty-one new cases of diphtheria among the navy recruits were reported on August 6th, and 191 cases are now being taken care of at the local hospital. In addition there are eight cases among the army troops, including one officer and one reservist. All are said to be slight.

Anesthetics for France.—In response to an urgent cablegram from Major Grayson M. P. Murphy, head of the Red Cross Commission in France, the Red Cross is planning to ship to Europe 100,000 half pound tins of ether. Because of the shortage of anesthetics in France, the Red Cross War Council, in addition, has authorized Major Murphy to establish, as soon as practicable, a central plant to manufacture nitrous oxygen. American machinery will be shipped to France for this purpose, and American operatives will be sent over.

Personal.—Dr. Edward B. Dench, of New York, has been selected by Lieutenant Colonel Burt R. Shurly, Medical Officers' Reserve Corps, who is director of the Detroit College of Medicine and Surgery Base Hospital, to take charge of the head division of the unit. Doctor Dench will have the rank of major.

Dr. S. R. Klein, formerly professor of histology and embryology at Fordham University and director of the Norwich, Conn., Research and Experimental Laboratory, has been appointed assistant superintendent, pathologist, and röntgenologist to the Waldheim Park Sanitarium and Polyclinic, Oconomowoc, Wis.

Civil Service Examinations.—Among the positions for which the New York State Civil Service Commission will hold examinations on Saturday, September 8th, are the following in the State Department of Health: Diagnostician and epidemiologist, $3,500, open to both men and women and limited to physicians; bacteriologist, $2,000, open to men and women; medical expert on tuberculosis, $3,200, open to men and women, limited to physicians; assistant to the deputy commissioner of health, men only, $3,500; field agent, division of tuberculosis, $2,000, open to men and women. A special circular of information may be obtained from the commission.

Red Cross Society on a Military Basis.—The Secretary of War announces that President Wilson has reorganized the American Red Cross Society on a military basis. Hereafter duly qualified officers of the Red Cross will be recognized by military titles, with assimilated rank and for appropriate duties. The two chief officers will have the rank of major general and the members of the central committee will receive the rank of brigadier general. Mr. Harvey D. Gibson, director general, becomes a colonel, and the assistant director general, a lieutenant colonel. Directors of certain bureaus, base hospitals, supply depots, etc., are given the rank of major; assistant directors become captains and lieutenants. These commissions confer no military authority or obligation, serving merely as certificates of identity.

Civil Service Examination for Chief Medical Examiner.—The Municipal Civil Service Commission has announced an examination for Chief Medical Examiner of New York city, for which applications will be received until 4 p. m. August 14th. The incumbent of this position will be in charge of the office of the Chief Medical Examiner of the city of New York, which will perform generally the duties heretofore performed by the coroners of the several boroughs. The salary is $7,500 a year; there is one appointment to be made. This examination is open to all citizens of the United States who meet with the requirements. Candidates must be physicians and skilled pathologists of at least ten years' experience. The examination will consist of an experience rating, an oral examination and a practical test in connection with which candidates will be required to perform an autopsy and report their findings in writing. Minimum age limit, thirty years. Any person desiring to take this examination should write at once for detailed notice of examination; address Robert W. Belcher, Secretary, Municipal Civil Service Commission, Municipal Building, New York, N. Y.

A Six Year Course in Medicine at Toronto University.—The senate of the University of Toronto has determined to increase the length of the undergraduate course in medicine from five to six years, this regulation, however, not to become effective until after the close of the war.

Bellevue Surgeons Receive Commissions.—Thirteen members of the surgical staff of Bellevue Hospital have received commissions in the Medical Corps of the United States Army: Dr. Michael J. Thornton, assistant medical superintendent of the hospital, has been commissioned a captain and the others with the grade of first lieutenant, as follows: Dr. George E. Aubrey, Dr. Thayer A. Smith, Dr. Joseph C. Horan, Dr. Eugene Calvelli, Dr. Arthur Palmer, Dr. Alfred E. Holmes, Dr. Carl Van Tyner, Dr. Martin L. Sowers, Dr. William B. Wood, Dr. Hubert C. Dixon, Dr. William V. Healey and Dr. Roland P. Blythe.

Sanitation of Districts Adjoining Soldiers' Camps.—The American Red Cross Society has organized a bureau of sanitary service to take over the care of sanitation in the vicinity of army and navy mobilization points. Dr. W. H. Frost, of the United States Public Health Service, is director of the bureau and an appropriation of $800,000 has been made by the Red Cross Society for its use. Sanitary control of the cantonments will be exercised by the military authorities, but the districts immediately adjoining do not come under their jurisdiction, and the object of the bureau is to supervise and aid in such operations as will tend to make health conditions about the camps as nearly ideal as possible. Increased forces will be provided for milk inspection, war will be made upon malaria carrying mosquitoes, and a radius of from fifteen to sixty square miles outside of the camps will be "policed" for the protection of the men.

American Women's Hospital.—The War Service Committee of the Medical Women's National Association has organized the American Women's Hospitals for work at home and abroad. The surgeon general of the Army and the director general of the department of military relief of the American Red Cross have approved the provision made for service to the army and to the civil population. The work will be officially part of the medical and surgical service of the American Red Cross. The scope of the plan is broad, including the establishment of hospital units for maternity service and village practice in the devastated parts of the Allied countries. In this country patients will be treated in hospitals equipped for the purpose; soldiers' dependents will be cared for; interned alien enemies will be given medical aid, and substitutes will be provided to look after the hospital service and the private practice of physicians who have gone to the front. The first units hope to go to France and Serbia in the early fall. Headquarters have been established at 637 Madison Avenue, New York. Dr. Rosalie Slaughter Morton is chairman of the War Service Committee.

Changes in Personnel of the Medical Board of the Council of National Defense.—More than half the original membership of the general medical board of the Council of National Defense have entered the service of the Army or Navy and are now engaged in active work for one of the military departments, either abroad or in the United States, and the membership of the board has had to be changed from time to time. The members who have been called to active duty in the offices of the Surgeons General of the Army and Navy include Dr. William J. Mayo, Rochester; Dr. Victor C. Vaughan, Ann Arbor; Dr. William H. Welch, Baltimore; Dr. Theodore C. Janeway, Baltimore; Dr. W. H. G. Logan, Washington; Dr. Edward Martin, Philadelphia; Dr. Charles H. Mayo, Rochester; Dr. William B. Snow, New York; Dr. Stuart McGuire, Richmond; Dr. Winford Smith, Baltimore; Dr. William C. Woodward, Washington. The following are in service in France or elsewhere: Dr. Frederic A. Besley, Chicago; Dr. George E. Brewer, New York; Dr. George W. Crile, Cleveland; Dr. John M. T. Finney, Baltimore; Dr. Joseph Marshall Flint, New Haven; Dr. Charles H. Peck, New York city; Dr. Richard P. Strong, Boston; Dr. William S. Thayer, Baltimore; Dr. George Walker, Baltimore.

National Social Unit Established in Cincinnati.—Thirty-three Cincinnati physicians have organized and elected a director for the purpose of conducting the health work of the district in which they live, under the plan of the National Social Unit Organization, which was formed last year in New York, under the presidency of Gifford Pinchot. Dr. J. H. Landis, president of the Cincinnati Academy of Medicine and health officer of that city, is chairman of the committee which has endorsed the movement.

British War Surgery.—Dr. Joel E. Goldthwaite, of Boston, a major in the Medical Officers' Reserve Corps, United States Army, who returned from Europe Tuesday, August 7th, where he had gone to study methods of treating the wounded in the hospitals of France and England, is reported to have said that out of a batch of 1,350 wounded soldiers who had been crushed and fearfully maimed by shells, 1,000 had been so skilfully patched up by the surgeons at the London Orthopedic Hospital that they were able to return to duty. Major Goldthwaite was one of twenty American medical officers who were sent abroad by the Government. He said he had returned to recruit surgeons for study of war hospital conditions in order that American soldiers might later have the benefit of modern treatment from their own surgeons.

Neurologists and Psychiatrists to Examine Recruits.—Major Pearce Bailey, of the Medical Officers' Reserve Corps, chairman of the Mental Hygiene War Committee of the National Committee for Mental Hygiene, has drawn up a set of directions for the one hundred and fifty psychiatrists and neurologists who have been detailed to conduct examinations of recruits in order to weed out men who are nervously or mentally unfit for service. The Committee on Clinical Methods and Standardization of Examinations and Reports, a subcommittee of the Mental Hygiene War Committee, has issued a report containing a general outline of the classes of recruits to be excluded from service. The committee is composed of the following members: Dr. August Hoch, of New York; Dr. Adolph Meyer, of Baltimore; Dr. E. E. Southard, of Boston; Dr. Albert Barrett, of Ann Arbor; Dr. William A. White, of Washington; Dr. Walter E. Fernald, of Waverley, Mass; Dr. Thomas W. Salmon, of New York; Dr. Pearce Bailey, of New York; Dr. Joseph Collins, of New York; Dr. T. H. Weisenburg, of Philadelphia; and Dr. Robert M. Yerkes, of Cambridge, Mass.

Reconstruction Hospitals.—The Surgeon General of the Army has approved the new Orthopedic Advisory Council which will make recommendations to the surgeon general concerning orthopedic matters and reconstruction work among the physically disabled soldiers. The members of this council are: Major E. G. Brackett, of Boston; Major David Silver, of Pittsburgh; Major Albert H. Frieberg, of Cincinnati; Major Fred H. Albee, of New York; Major G. G. Davis, of Philadelphia; Major H. D. Corbusier, of the Surgeon General's Office, Washington; and Major Joel E. Goldthwait, of Boston.

It is hoped that an arrangement can be made at these reconstruction hospitals whereby the work will be done under the supervision and control of the surgeon general, who will provide the staff for the work of reeducation. The object and aim of this policy is to keep the men under control until they are selfsupporting. A new reconstruction orthopedic base hospital is being organized in Boston, under the charge of Major Brackett, and it is understood that another is under way in Washington. There are ten orthopedic reconstruction hospitals and many of the base hospitals have attached a unit for this special work. It is estimated that over 70 per cent. of the cases that are turned over by the base hospitals for further treatment are bone, joint, tendon, and nerve injuries. The adequate provision now being made for the soldiers who will be returned to the United States suffering from crippling injuries, to be permanently debarred from selfsupport unless reeducated and fitted for remunerative work lessens the seriousness of a sociological and economic situation.

Modern Treatment and Preventive Medicine

A Compendium of Therapeutics and Prophylaxis, Original and Adapted

THE USE OF INEXPENSIVE DRUGS IN PRACTICE.

By Louis T. de M. Sajous, B. S., M. D.,
Philadelphia.

(*Continued from page 233.*)

In the last issue the relative cost of the various drugs of the nitrite group was compared, and nitroglycerin, among others, was shown to be considerably less expensive than amyl nitrite. It was suggested that the difference in rapidity of action between nitroglycerin and amyl nitrite is not such as to render unjustifiable substitution of the former for the latter in many instances, even among suddenly arising disturbances in which prompt action on the part of the vasodilator remedy used seems desirable. In connection herewith certain relative disadvantages of amyl nitrite were referred to. That one can expect nitroglycerin to be readily absorbed from the oral mucosa is confirmed not only by the actual observation of prompt pharmacological action after administration in this manner, but by the fact, recognized in the U. S. Pharmacopœia, that even contact of ntiroglycerin with the skin is sufficient to induce nitrite symptoms, such as headache.

An emergency disorder not yet mentioned in which nitrites are held serviceable is the paroxysm of bronchial asthma. Here there has come into use what is under ordinary conditions the least expensive of all the drugs exerting a nitrite effect, viz., potassium nitrate. When burned, usually with stramonium or other bronchodilator drugs, and often in the form of the antiasthmatic cigarette, made with paper previously impregnated with a solution of nitre, this salt sets free nitrites which are believed capable, on inhalation, of relaxing bronchiolar spasm. Because of the increase, at least fourfold, in the price of potassium nitrate owing to the war, this salt, in a single dose for inhalation purposes of about five grains, is now little if at all cheaper than nitroglycerin or sodium nitrite. It can hardly be considered, moreover, as certain in action as the other nitrite remedies, and substitution of it for them in any conditions more acute or serious than the average asthmatic paroxysm would therefore seem unjustifiable.

Turning now to conditions in which a more prolonged, and not necessarily as prompt nitrite action is desired, we are led to consider in the first place those associated with continued high vascular tension. In these amyl nitrite is from the outset inappropriate because of its transitory action, and the remedies generally used are nitroglycerin and sodium nitrite. As is generally recognized, it is especially in the incipient stage of arteriosclerosis that nitrites are effectual in reducing vascular tension and relieving headache and other symptoms caused by it. According to W. J. Conklin, 1910, the extent to which high arterial pressure can be lowered by the nitrites varies largely with the existing degree of spasm of the vessels; vessels in a condition of fibrosis are especially susceptible to spasm, and hence the relief afforded by these agents, analogous to that obtained in the bronchiolar spasm of asthma. Admitting that nitrites in high blood pressure constitute on the whole merely symptomatic treatment and that in many instances an artificial diminution of a moderately high pressure is contraindicated, it is of interest to compare the relative advantages of nitroglycerin and sodium nitrite for the purpose in question.

Although nitroglycerin and other organic nitrates are generally believed to require chemical reduction to nitrites by the tissues before the typical nitrite action can be exerted, observation shows plainly that they act more rapidly and evanescently than the inorganic nitrites themselves. This peculiarity, together with the facts that the organic nitrates promptly cause dilatation of excised vessels with which they are brought in contact, and that nitroglycerin is active in a dose—0.01 grain—one hundred times smaller than is sodium nitrite, have led even Sollmann to question whether, after all, nitroglycerin does not act directly without previous chemical change. The tables constructed by Wallace and Ringer and by Matthew as a result of clinical investigation of the actions of the nitrites on the blood pressure show that whereas nitroglycerin begins to act in one or two minutes, reaches its maximum effect in five to eight minutes, and is inactive after thirty to thirty-five minutes, sodium nitrite begins to act in only five to fifteen minutes, attains the maximum in fifteen to forty-five minutes, and continues to act for one to two hours. According to Matthew, moreover, the maximum depression in blood pressure is maintained by two to three minims of nitroglycerin solution for only two minutes, whereas by sodium nitrite it is maintained for twenty to sixty minutes. In patients with arteriosclerosis, Wallace and Ringer found two grains of sodium nitrite active for two hours, as against thirty-five minutes for one-thirtieth grain of nitroglycerin. The maximum drop in pressure was also greater with the inorganic salt—fifty-three millimetres Hg as against thirty millimetres. The drop in the diastolic pressure under nitrites is, according to Lawrence, 1912, approximately one half that in the systolic pressure. Sodium nitrite has been held sometimes to produce gastric irritation, the hydrochloric acid of the gastric juice breaking some of it up and setting free nitrous acid and possibly some irritant gases. This unpleasant action, however, does not seem sufficiently pronounced to figure as an actual disadvantage of the salt as compared to nitroglycerin.

Despite the fact that the relief of such high pressure symptoms as headache, tinnitus, dyspnea, flushes, etc., lasts longer after single doses of the nitrites than the effect on the blood pressure, thus

prolonging the time of benefit from nitroglycerin beyond its half hour period of manifest vascular action, it seems plain from the foregoing observations that for a sustained effect in high pressure cases, sodium nitrite is in general superior to nitroglycerin, though the latter be taken four times a day, or even oftener. This should, perhaps, be modified to the extent of admitting, with Bastedo, that in general arteriosclerosis the effect of nitroglycerin sometimes persists several hours. Two probable advantages of sodium nitrite over nitroglycerin are brought to light in the suggestion of Hewlett, 1912, that the former causes less headache than the other nitrites employed in high blood pressure, and that of Matthew, to the effect that the drug tolerance which soon develops during the use of nitroglycerin does not occur in the case of sodium nitrite. In the preceding installment these two agents were referred to as being practically alike in cost, dose for dose. As a matter of fact, the difference between them, to be precise, appears to be one of about twenty per cent. in favor of the inorganic salt. The less expensive is thus also that which presents the greater number of advantages in the continuous treatment of high pressure states.

(*To be continued.*)

Nonsurgical Treatment of Intestinal Stasis.—J. H. Kellogg (*Journal A. M. A.*, June 30, 1917) does not believe in the safety or propriety of ileocolostomy or partial colectomy, except in the very small minority of cases in which such operation is made essential through extensive disease of the colon. In the vast majority of cases of chronic intestinal stasis the colon can be reeducated and the condition relieved by proper medical measures. A bulky diet, low in protein and made up chiefly of fruits, fresh vegetables, and whole grain preparations should be prescribed. Half an ounce to one ounce of cellulose should be given daily in the form of agar or bran with each meal. At every meal the patient should take from one half to one and one half ounces of liquid petrolatum. Abdominal massage and exercises for developing the abdominal muscles should be ordered. In obstinate cases it may be necessary at first for the patient to take a couple of tablespoonfuls of bran three or four times a day and as much fruit as he can eat. Tomatoes, fresh or stewed, are especially useful. When there is hyperacidity such fruits as bananas, pears, white cherries, and melons should be used. The patient should be required to go to stool the first thing in the morning and after each meal. It may be necessary at first to give an occasional enema at 80° F. Where there is spastic colitis hot saline enemas should be given and followed by the introduction into the rectum of several ounces of a fluid culture of Bacillus bulgaricus and Bacillus bifidus. This should be done with the patient in the knee chest position. Electricity to the upper rectum or pelvic colon, very weak solutions of hydrogen peroxide, solutions of citric acid, or a mixture of equal parts of carbon dioxide and pure oxygen gas introduced into the rectum will stimulate the intestine in cases with lost or impaired sensibility. It is often preferable to use a petrolatum which melts at body temperature rather than the liquid preparation.

Successful Conservative Treatment of Early Gas Gangrene.—C. H. S. Frankau, Hamilton Drummond, and G. E. Neligan (*British Medical Journal*, June 2, 1917) have acted upon the recent proof that gas gangrene was a disease of damaged muscles and was likely to be limited to single muscles or muscle groups. On this basis they have attempted to discover the infected muscles as early as possible and to cut short the disease by complete resection of each of those found involved. Even in cases in which the resections were so extensive as to render the limb useless, its practice gave better results than immediate amputation, and the latter operation was reserved for a time after the patient had recovered from the gangrene. Following the muscle resections the aftertreatment of the wounded part included the use of the lightest and thinnest possible dressings, exposure of the wound to the sunshine, and constant or intermittent irrigation by the Carrel method of some modification. These measures gave unexpectedly favorable results, as illustrated by the records of fourteen cases.

Ethyl Chloride as Anesthetic in War Surgery.—Boureau (*Presse médicale*, May 21, 1917) highly recommends the substitution of ethyl chloride for chloroform and ether in war surgery because of its rapid action, because it is much less toxic, having no deleterious effect on the heart, respiratory apparatus, liver, or kidneys, and because of its rapid elimination, all but one twentieth of the amount in the blood passing out within four minutes after its administration, whereas in the case of chloroform one third and in that of ether one seventh of the amount still persists in the blood after one hour. In military practice much time is saved through the rapidity of induction of anesthesia and also through the fact that immediately after the operation most of the wounded can leave the ambulance hospital in the sitting position, instead of recumbent. For the initial cleansing of wounds, extraction of missiles, ligations of vessels, and painful dressings, ethyl chloride is decidedly the agent of choice, and those who have taken it prefer it to ether or chloroform. Boureau's recent experience with it covers nearly 2,000 cases, including 212 missile extractions, 135 removals of bone fragments, fifty-seven amputations or operations on flaps, thirty-six resections, including the knee, shoulder, and elbow, twelve astragalectomies, twelve nerve sutures, etc. Not the least untoward happening attended the anesthesia in any instance, though operations lasting as long as an hour and three quarters were performed under it. All special inhalers were discarded in favor of a four layer compress of rather thick cloth or a mere handkerchief, on which two to three c. c. of kelene were dropped to start with. Although plenty of air was allowed the preanesthetic period never exceeded one minute. After fifteen or twenty seconds the dose of kelene was renewed and the cloth brought more tightly to the face, and a minute and a half or two minutes later, complete resolution was obtained, the corneal reflex disappeared, the pupils dilated, and the operation was begun. Anesthesia was then kept up by dropping about one c. c. of kelene on the compress every minute. Slight convulsive movements of the limbs were found to indicate the giving of a little pure air, when they promptly passed off.

Citrate Blood Transfusion.—V. P. W. Sydenstricker, V. R. Mason, and T. M. Rivers (*Journal A. M. A.*, June 9, 1917) report their experiences with this method, as compared with the results obtained by other methods of transfusion. They conclude that the citrate method is almost ideal if very careful preliminary tests for blood compatibility are made. These tests are absolutely essential to success and the observations to determine the absence of hemolysis and agglutination must be prolonged over periods of at least an hour. Washed cells from donors of Moss's Group IV may be given with safety to recipients of any other group. Repeated transfusions in pernicious anemia are associated with some danger, since after a number of such transfusions homologous blood may cause reactions of increasing severity. The symptoms which most commonly follow blood transfusion are, in the order of the frequency of their occurrence, malaise, slight fever, chilly sensations, actual chill, urticaria, pruritus, nausea, vomiting, lumbar pain, dyspnea, cyanosis, and hemoglobinuria. Symptoms of these types were present in seventeen per cent. of the 100 transfusions done by the authors, but most of the reactions were very slight and none was fatal.

Operation for Loose Semilunar Cartilage.—R. P. Rowlands (*Lancet*, June 9, 1917) describes an operation for the cure of loose internal semilunar cartilage which is both simple and productive of the most satisfactory results. Before undertaking the operation one should be very certain that the diagnosis is correct and should also select his cases with some care, as a fair proportion of the recent ones will recover without operation. In those in which an operation is required the knee should be put at rest for two or three days to lessen the effusion. Then the skin is prepared from the middle of the thigh to the middle of the leg by shaving, washing with ether, painting with iodine, and applying a sterile pad. With the patient anesthetized the leg is held up for a few minutes to empty it of blood and a flat rubber tourniquet is wrapped very tightly about the middle of the thigh. With the knee in semiflexion and properly and completely draped with sterile towels, an incision two and one half inches long is made vertically over the space between the femur and tibia and one inch internal to the patellar ligament. It should extend half an inch below the upper border of the tibia. Sterile gauze pads are clipped to the edges of the wound and the joint is opened. With the edges of the wound retracted by an assistant the front end of the cartilage is detached with a knife and drawn forward and inward with a Mayo-Ochsner forceps. The middle and posterior portions are gradually separated from the tibia and the capsule, increasing flexion of the knee, and making access to the posterior end easier. Nearly the entire cartilage is removed. The knee is then straightened and the capsule is sewed with a continuous suture of fine gut, the skin with one of linen. A sterile pad is applied, secured by a sterile gauze roll and covered with a thick layer of cotton, extending from the lower third of the thigh to the upper third of the knee. Over all a firm bandage is applied. A second layer of cotton wool is put on and this is covered with a bandage very firmly applied. Then the tourniquet is removed and the knee slightly flexed over a soft pillow. This operation avoids all hemorrhage into the joint, minimizes the manipulation of the parts, and avoids infection. Aftertreatment begins at once by daily gentle passive flexion and extension of the knee, removal of the outer bandage and cotton on the fourth day, and the inner and the skin stitches at the end of a week. The patient is then allowed to get about in a wheeled chair and is permitted to walk a little with the knee stiff at the end of ten days. Massage, manipulation, and gentle active and passive movements are continued and increased so that by the end of a month or six weeks the movements and functions of the joint are perfect.

X Ray Treatment of Goitre.—Russell Boggs (*Interstate Medical Journal*, April, 1917) believes that the Röntgen treatment offers a good prospect of cure without operation in a large percentage of cases of exophthalmic goitre. The principal treatment should be directed to the thyroid, but in many cases the thymus should also be rayed; this is major work and should not be attempted by any one unfamiliar with the technic and the physiology of the ductless glands. The first symptoms of improvement are a decrease in the pulse rate and an increase in weight; the reduction in the size of the thyroid is not always marked even after the disappearance of all symptoms, and the exophthalmos is the last to show improvement. Even if operation is found to be necessary later the mortality will be lessened by a preliminary x ray treatment, the aim of such treatment being to produce sufficient atrophy of the thyroid so that it will bring forth a normal amount of secretion and no more.

A New Treatment for Psoriasis.—Louis Bory (*Presse médicale*, June 7, 1917), in view of the favorable action of sulphur, used internally or externally, on psoriasis, the probable relationship of psoriasis to tuberculosis, in which sulphur likewise acts well, and the beneficial effect of eucalyptol, used externally, on psoriasis and other skin affections, was led to try a combined sulphur and eucalyptol treatment in psoriasis, using the following formula:

℞ Sulphuris præcipitati puri, ...0.2 gram;
Eucalyptolis, ...20 c.c.;
Olei sesami, ...80 c.c.

In preparing this solution the oil and sulphur are first heated until the latter has completely dissolved, the solution then cooled, and the eucalyptol finally added. Olive oil might be substituted for the oil of sesame, but the resulting solution is less stable and perfect. The preparation was injected in five c. c. doses deeply into the gluteal muscles. In the first patient, a man covered with psoriasic patches for many years, thick scales became detached on the third day after the first injection. Then the erythematous patches themselves became paler and finally disappeared, in the absence of any local treatment. In four other cases results almost equally brilliant were obtained. In the most rebellious a slight rose coloration remained at the site of the former patches after eight injections. Bory believes a similar oily solution of sulphur might well replace the colloid preparations of sulphur hitherto used in chronic rheumatic cases.

Autoserotherapy in Acute Infections.—Herbert H. Sinclair (*International Journal of Surgery,* April, 1917) prepares an autosensitized, autogenous vaccine by applying a blister to the patient's chest and drawing off the serum in a hypodermic syringe. This serum is injected into the patient. Sinclair has used it with success in cases of pneumonia, whooping cough, and puerperal sepsis. The higher the leucocytosis the better the result. When leucopenia is present, no benefit is to be expected. There is no local reaction at the site of injection, which is always the case when stock vaccines are used. In cases of pneumonia there is a general feeling of relief within an hour, the breathing becomes easier, and perspiration sets in. He has used this form of vaccine in over 200 cases.

Treatment of Goitre.—J. C. Moore (*Northwest Medicine,* June, 1917) says that it is known that drinking water carries the causative agent of goitre and that the first step in treatment should be to use nothing but boiled or distilled water. This is alone usually sufficient to cure the simple nontoxic goitres of adolescence. If this fails iodine should be administered cautiously for a period of not over a month and the skin over the tumor should be painted with the drug at the same time. In toxic goitres iodine should be used with extreme caution, if at all. In such cases absolute physical and mental rest, the use of boiled water, catharsis, meatless diet, and a dose of 0.3 gram of quinine hydrobromate and of 0.06 gram of ergotine every four hours should be prescribed. Injections of boiling water into the gland are of some value. Operation is usually needed for such cases after the toxic stage has been somewhat controlled. Hyperplastic, nontoxic goitres may resist the measures previously outlined and they should receive one or more injections of five per cent. phenol directly into the gland substance. About four to eight mils is sufficient for a single injection. This usually promptly reduces the gland to normal size and effects a permanent cure.

The Vaginal Plug.—E. Hastings Tweedy (*Lancet,* June 2, 1917) urges the proper use of the vaginal plug for the control of ante partum hemorrhage. The failures which its use has met in the hands of many others are due to the improper method of application. The plug should be made of many small pieces of cotton which should be inserted as follows: The left hand should be passed into the vagina with the palm facing the sacrum and the tips of the fingers behind the cervix. Pieces of cotton wool the size of the thumb knuckle, wrung out of lysol solution, should be inserted into the cervix with the right hand while the fingers of the left are squeezing the pledgets into a solid mass and making room for more. This process should be continued until the whole vagina is filled with a solid mass of the cotton. A T binder should then be applied and a firm abdominal binder put on and fastened tightly from above downward. Such a plug will at once arrest the hemorrhage, which it accomplishes by compressing the uterine vessels between its mass and the uterus. The plug has the disadvantages of not being easy to apply and of causing some pain and shock and often some superficial lacerations of the vaginal mucosa.

Wounds of the Buttocks in War.—George E. Davis (*Journal A. M. A.,* June 9, 1917) emphasizes the frequency and very serious nature of this type of wound. Owing to the fact that the soil is often contaminated with tetanus organisms, and more specially to the fact that the human stools often harbor this organism, the occurrence of tetanus as a complication of these wounds is very frequent. For its prevention each patient should receive an immediate prophylactic dose of antitoxin and should be given another dose when he reaches hospital. Gas bacillus infection is often very frequent and very fatal owing to the fact that amputation cannot be performed. It should be treated by the early free incision of all such wounds, the removal of foreign bodies, efforts to destroy the ordinary pyogenic organisms, and open drainage with dry, loose gauze packs. The local infiltration of the wound tissues with oxygen is also of considerable value in checking this infection. The diet of all cases with buttock wounds should be free of food that might be likely to carry tetanus organisms, such as the vegetables and fruits which are eaten raw. All patients should receive a preliminary thorough purgation to remove any such organisms which may have been present. Cases with severe lacerated wounds involving the rectum often do badly, but their prognosis can be greatly improved by the prompt performance of a colostomy.

Sterilization of Infected Wounds by Sunlight.—Leriche (*Presse médicale,* May 24, 1917) reports bacteriological observations, conducted with the assistance of Mendeleef, on the action of heliotherapy of infected wounds. In the most favorable cases, those of recent wounds from which dead tissues had been excised and which had been opened out flat, a sterile condition was obtained in forty-eight hours, the first period of insolation lasted half an hour and the second two and a half hours. Exposed to sunlight regularly such a wound remained sterile for six days, at the end of which secondary suture was performed with successful results. In less favorable cases, e. g., deep wounds with irregular recesses and fractures, the sterile condition was obtained in four to six days, while in less recent and badly infected or imperfectly opened up wounds, a still longer period was required. Microscopical study showed that with the fluid oozing copiously from wounds exposed to sunlight bacteria are mechanically washed outward from the tissues, occurring at first in free suspension, but later filling numerous living leucocytes. Smears made before, during, and after exposures clearly revealed a phagocytosis which completes the effect of the mechanical disinfection. The pyocyaneus organism disappeared after two fifteen minute exposures, the vibrio of sepsis almost entirely after a half hour exposure, and the proteus after exposure on six successive days. Where the sunlight is rather subdued the wounds can be safely exposed for a long time; where bright and hot, small progressive doses are indicated, not exceeding fifteen minutes on the first few days. Where a wound cannot be properly opened up, as in the upper part of the thigh or the pelvis, heliotherapy should not be employed, but Carrel's method of drainage should be instituted.

Clinical Problems Relating to the Faucial Tonsils in Adults.—George E. Shambaugh (*Annals of Otology, Rhinology, and Laryngology,* March, 1917) states that it is now generally recognized that such conditions as neuritis, acute and chronic rheumatism, Bright's disease, and cardiovascular degeneration owe their origin for the most part to foci of infection on such as are frequently found in the faucial tonsils. Enlarged tonsils from which masses of epithelial debris can be expressed from the crypts should be regarded with suspicion in the presence of systemic infection. There are cases, however, in which neither from the history of acute attacks of tonsillitis nor from local findings in the tonsils is there any positive evidence of tonsil infection, and still they may be the seat of an infection capable of producing the most serious systemic trouble.

Treatment of Paresis by Injections of Salvarsan into the Lateral Ventricle.—Graeme M. Hammond, Norman Sharpe, and J. Wheeler Smith, Jr. (*Journal A. M. A.,* July 7, 1917) report results, of their experiences with this method of treatment in thirteen cases, which have been under observation for sufficient time to warrant discussion. Two of the patients died of their paresis, one was unimproved by the only injection which he received, and one other showed no improvement. The remaining nine showed decided improvement, both serologically and clinically. Five of these have returned to work and are now selfsupporting, all having been unable to work for periods of three to eighteen months before treatment. Two of these appear entirely normal and have been working for over a year, but it is still too early to state that they have been cured. A period of three to five years would seem necessary before such a treatment would be warranted. In none of the patients did the treatment cause any serious reactions. The serological findings, the technic of the operation, and the preparation of the salvarsan for injection are given in detail in the paper.

Postoperative Paralytic Ileus.—Ora S. Fowler (*Colorado Medicine,* May, 1917) says that medical treatment should be instituted early along the following lines: Enemas, hot abdominal stupes, physostigmine sulphate in doses of half to one milligram, one mil of pituitary extract hourly for three to four hours, or one mil of digalen, two to four milligrams of strychnine, and caffeine sodium in doses of thirteen centigrams should be given, each every three hours alternately. The stomach should be washed every hour or so and large amounts of fluid should be given by rectum and by hypodermoclysis up to from five to eight litres every twenty-four hours. Cathartics should not be used, as they may not only be of no value, but may be actually dangerous. If relief is not secured within twelve to eighteen hours by such treatment, or if the patient grows progressively worse, resort should be had to surgical measures at once. Of these the simplest and best is incision in the left side of the anterior abdomen with the bringing to the surface of a loop of the upper jejunum and its suture to the peritoneum. It should then be opened and tubes inserted both upward and downward to remove the gas and fluid contents and also for saline intestinal irrigations.

Glaucoma.—Hans Barkan (*California State Journal of Medicine,* July, 1917) states that while he likes the Elliot operation he considers it limited to certain cases. In the one eye patients no fistulating operation should be done unless all other methods fail. In acute inflammatory attacks, such reduction should be effected as is possible by myotics, followed by iridectomy. If this is technically difficult it is to be preceded by posterior sclerotomy. In chronic subacute glaucoma, iridectomy or the Elliot operation should be done; the former should the eye be in relatively good condition, the latter if it is not. In glaucoma simplex myotics are preferred while *in statu quo;* the Elliot operation if they fail.

Treatment of Cranial Denudation.—J. Labouré (*Presse médicale,* June 14, 1917) writes concerning the treatment of extensive scalp wounds in which a portion of the cranial surface is entirely exposed. There is no tendency to granulation over the bone in such wounds, and epidermal grafts would not take hold. Labouré finds that to excite granulation over the cranium, all that is necessary is to drill a few small holes in the external table of the skull in order to set free the connective tissue of the diploe. From ten to fifty such holes may be made about one centimetre apart. Under a normal saline solution compress renewed every two or three days, reddish islets of granulation tissue will appear through the holes and extend over the bony surface. In a few weeks the bone will be completely covered, and over the granulation tissue epidermal grafts can be applied with confident anticipation of a successful result.

Digitalis in Auricular Fibrillation.—Arthur R. Cushny (*Lancet,* June 9, 1917) points out the now well known fact that digitalis is most potent in influencing the rate and rhythm of the heart in certain cases of auricular fibrillation and seeks to explain this specific action of the drug. He recalls the fact that the drug is capable of slowing the heart by stimulation of the vagus centre, but that this does not account for its slowing action in cases of auricular fibrillation, in which he has shown it to act directly upon the auriculoventricular bundle. He has observed that in the excised heart of animals, perfused with Ringer's solution for some time and thrown into auricular fibrillation by electrical stimulation, digitalis similarly slows the ventricular rate through a direct action on the bundle of His. He also finds that digitalis is capable of acting in the same manner in hearts similarly treated but not caused to fibrillate. These animal hearts are debilitated and starved through want of adequate oxygen and nutriment, and it is only on such hearts that digitalis exerts this type of local action. In the condition of auricular fibrillation in man it is reasonable to believe that the heart is also more or less debilitated through exhaustion and inadequate supply of oxygen and nutriment, and it seems plausible to believe that this is the cause of the special type of digitalis action observed. In further agreement with the animal experiments he cites two cases in man without auricular fibrillation in which the heart responded with block through action of digitalis directly on the bundle of His.

Miscellany from Home and Foreign Journals

The Leucocytes in Cases of Irritable Heart.—Grace Briscoe (*Lancet*, June 2, 1917) studied the leucocytes in a large number of cases of irritable heart and in a small group of normal controls and found that while at rest the irritable heart cases showed a slight rise or none at all above the average normal. While these patients were up and about, however, there was a considerable degree of leucocytosis. In many cases, specially those of long standing, there was also a relative and absolute lymphocytosis. The average increase in total white cells after exercise was about forty per cent. in the cases of irritable heart and about fifteen per cent. in the normal controls. The rise in polynuclears after exercise was twenty-four per cent., that in lymphocytes forty-eight per cent. in the irritable heart cases as compared with rises of thirteen and twenty-five per cent., respectively, in the normal controls. It was found that the intensity of the blood changes observed ran somewhat parallel to the severity of the clinical condition present. The occurrence of these blood changes in cases of this type, while not constant, was found to be sufficiently frequent to be of considerable diagnostic value as it represented at least one symptom which could not be simulated. The absence of either of the changes was not found to be certain evidence upon which to exclude irritable heart.

Functional Cardiopulmonary Disturbances Following Wounds of the Chest.—E. Sergent (*Bulletin de l'Académie de médecine*, June 12, 1917) points out that many subjects wounded in the chest later complain of discomfort in breathing, palpitation, and thoracic pain in the absence of all injury to the heart, pericadium, lungs, pleuræ, and mediastinum, as shown by complete physical and x ray examinations. In ten cases he was led to ascribe these disturbances to injury of the cardiac plexus and phrenic by the missile, whether the latter has remained in the tissues or passed out beyond. Thus, in a man struck four centimetres above the left nipple by a rifle bullet, which passed through to the muscles of the back, complaint of the discomforts referred to was made to Sergent about three months after the injury, and the writer noted a typical left phrenic neuralgia, with immobility of the left side of the diaphragm, pulse acceleration on the least movement, and pupillary inequality. X ray examination proved negative. Soon after there supervened thyroid enlargement, persistent tachycardia, tremor, and exophthalmos, all of which gradually subsided under high frequency currents and hematoethyroidin. The nine other cases were likewise characterized by instability of the pulse and respiration, with constant dyspnea, increased by the slightest exertion, together with phrenic neuralgia in three instances, pupillary inequality in four, and symptoms of Graves's disease in five. Nearly all these patients had received an injury of the cardiac plexus, as shown by the x ray or estimation of the course of the missile by comparison of the wounds of entrance and exit.

A Blood Change in Gas Poisoning.—James Miller (*Lancet*, May 26, 1917) studied the blood in forty-four cases of gas poisoning and found that there was an increase, both actual and relative, in the number of lymphocytes in those cases in which the symptoms persisted. In severe cases the increase was marked and of diagnostic value. In the absence of complicating disease which might cause a similar blood change, counts in which the percentage of lymphocytes approached that of the polynuclears indicated that the patient was still suffering from the effects of the gas. Slight increases in lymphocytes were found so frequently as to be of no significance. In some cases the occurrence of a diminution in the number of polynuclears was noted and it accentuated the increase in the relative lymphocyte count. The blood change was found to appear early, usually within a month, and persist for many months, along with persisting symptoms. The phenomenon occurred without reference to the kind of gas which caused the poisoning and bore no relation to the type of symptoms present. Its cause was not established, but it seemed probably related in part to the chronic inflammation in the respiratory tract and of the gastric mucosa.

Root Absorption in the Deciduous Teeth.—Luciani (*Bulletin de l'Académie de médicine*, May 15, 1917) points out that the prevailing view that absorption of the roots of the milk teeth takes place because of the pressure exerted on them by the subjacent growing permanent teeth does not sufficiently account for the phenomena witnessed. Sometimes, indeed, removal of milk teeth, the roots of which have been only in small part absorbed, becomes necessary to permit eruption of the corresponding permanent teeth. Examining over two hundred milk teeth he had extracted, Luciani noticed that whenever the roots of a tooth had been completely absorbed the pulp of that tooth was in good condition; on the contrary, whenever the roots had remained almost or quite unabsorbed, the pulp had become sphacelated or disappeared. Apparently, a healthy pulp is a necessary factor in the proper absorption of the roots of the milk teeth. The pulp brings about progressive absorption of the roots in order to prevent such compression of its own supplying vessels between these roots and the advancing permanent tooth as would lead to death of death of the pulp itself. The writer protests against the impression prevailing among the laity, and even in the medical profession, that the milk teeth need not be given much attention because they are soon to be replaced by others. The special susceptibility of the milk teeth to necrosis of the pulp results in the presence, in over fifty per cent. of children between the ages of three and ten, of foci of dental or paradental infection If the practitioner systematically had the mouths of children under his care examined by qualified dental specialists, cases of cryptogenetic osteomyelitis, so called growing fever, gland infection, etc., could doubtless be more thoroughly studied.

Cerebral Diplegia with Abnormal Flexibility of Ankle Joints.—F. Parkes Weber (*British Journal of Children's Diseases,* March, 1917) reports a case of a boy, five and one half years old, with abnormal laxity of the ankle joints permitting extreme dorsal flexion. There is no real muscular atony. The knee jerks are at times greatly exaggerated. At times the plantar reflexes are of the extensor type. There is an "overflow" of the abdominal reflex. The response is not limited to contraction in the muscles of the abdominal wall, but it involves considerable movement of the thighs and trunk. The condition probably dates from birth. The birth was a difficult breech presentation and some widespread damage to the cerebrum and possibly the cerebellum took place.

Bilateral Pneumococcal Parotitis.—John V. Barrow (*Journal A. M. A.,* June 9, 1917) reports a case of this rare condition, occurring as a complication of a severe bronchitis. The complication began abruptly with a chill and symptoms of collapse and pain in the left parotid region. Two days later this gland was greatly swollen and the duct orifice was red and pouting and excreted greenish yellow mucopus after careful manipulation of the gland. Three days later the opposite gland became similarly involved. From three to ten mils of the purulent fluid was expressed from the glands two or three times daily for about two weeks and was found to contain pneumococci in pure culture. On the seventh day of the glandular involvement the fever fell by crisis and rose subsequently only when the duct orifices became plugged. Convalescence was slow, lasting for months, but recovery was ultimately good. The literature contains reports of only thirty cases of pneumococcal parotitis, eight of which were bilateral. An analysis shows that the earlier in the disease the parotitis develops the more serious it is through increase in the septicemic manifestations, not of the lung condition.

Influence of Maternal Oral Sepsis on the Fetus and Marasmic Children.—E. Spencer Pierrepont (*Lancet,* June 2, 1917) suggests, as the result of years of observation, that the presence of oral sepsis in the mother exerts a considerable influence upon the welfare of the child and even leads in a number of cases to miscarriage and prematurity. He contends that the oral sepsis furnishes toxins which are absorbed into the maternal bloodstream and materially affect the vitality of the fetus *in utero.* This gives the child a material handicap at birth and often seems to underlie the subsequent development of marasmus. It also influences the condition of the mammary glands and is often the cause of deficiency in the quality or quantity of the milk. Finally the added strain which the absorption of these toxins throws upon the maternal excretory apparatus is often enough to turn the tide against the woman in the toxemias of pregnancy and to precipitate eclampsia and other complications. The validity of these suggestions is shown by the instances of the birth of healthy children by mothers who had previously had weak and marasmic ones or miscarriages or premature births, normal births having resulted after the oral condition had been cured.

A Case of Cyclic Vomiting with Acetonemia.—F. Parkes Weber (*British Journal of Children's Diseases,* March, 1917) cites the case of a girl, aged seven years, who is said to have vomited at birth, and has had recurring attacks of vomiting since, lasting about three or four days, with intervals averaging five weeks between the attacks. The other members of the family—three sisters and four brothers—are not affected. The urine reduced Fehling's solution very slightly, but gave a positive reaction for acetone and diacetic acid. She was treated with sodium bicarbonate, which soon rendered the urine alkaline, but the reaction for diacetic acid was not negative until the fifth day. A second attack occurred about three weeks after she had been discharged from the hospital. This attack was preceded by a feeling of lassitude and sleepiness lasting one day. Six hours after the vomiting commenced the reactions for acetone and diacetic acid were negative. About eight hours after the first uranalysis both reactions were positive. The reactions were not negative until the fourth day. The affection seems to occur more often in girls than in boys, and usually between the ages of two and twelve. It may occur in more than one child of the same parents. The occurrence of migraine in other members of the family has been noted. It is possible that the mental symptoms—drowsiness and lassitude—mentioned in this case may after puberty become transformed into migrainous attacks. Pyrexia in these cases is not common, the temperature rarely exceeding 100° F.

Heart Failure during Tonsillectomy.—W. M. Mollison (*British Journal of Children's Diseases,* March, 1917) reports the very interesting case of a boy, six years of age, in whom shock developed during an operation for the removal of tonsils and adenoids under chloroform ether anesthesia. The body became flaccid, respiration had ceased, the pupil was dilated, and the corneal reflex absent. Lowering of the head, pulling the tongue forward, artificial respiration according to the method of Sylvester, and the administration of stimulants, including pituitrin injected directly into the heart, did not improve his condition. The stethoscope revealed absence of heart sounds. An incision four inches long was made in the abdomen, extending from the ensiform to just above the umbilicus, and through this incision the heart was massaged. Almost one c. c. of pituitrin was injected directly into the heart through this incision. It is estimated that the period of cessation of heart beats was from thirteen to twenty-four minutes. The boy was given saline infusions and the foot of the bed was raised. About an hour later he became restless and the intestines escaped from the wound. He was operated on again under light ether anesthesia and the intestines replaced. He was unconscious for seven days, had rigidity of the limbs for ten days, incontinence of urine for fifteen days, of feces for twelve days, and at one time became violent and tore the bedclothes. These symptoms were probably due to severe cerebral irritation, the brain being damaged during the cessation of the circulation. He eventually made a complete recovery. Thirteen other successful cases of a similar kind have been reported.

Infective Theory of Acute Leucemia.—Gordon Ward (*British Journal of Children's Diseases,* March, 1917), from a study of a large number of cases concludes: 1, that there is a congenital form of leucemia which occurs in children whose parents are not leucemic; 2, that leucemic parents have never been known to transmit the disease to the newborn child; 3, that instances in which actual infection of one person by another might seem to have occurred are very few, although not necessarily devoid of significance; 4, that in having a marked preference for a particular sex and age leucemia differs from the infective class of diseases and resembles the metabolic diseases and cancer.

Wassermann Reaction in the Insane.—Egbert W. Fell (*Journal of Nervous and Mental Diseases,* June, 1917) finds the following practical working rules in the differentiation of cases in insane hospital work: 1. A positive serum Wassermann usually indicates paresis, especially in males. 2. A negative serum does not exclude paresis. 3. A positive fluid Wassermann practically always indicates paresis. 4. A negative fluid practically excludes paresis. 5. A positive fluid Wassermann is by far the sign most constantly present in paresis and constantly absent in other psychoses, which makes the laboratory findings more reliable criteria for diagnosis in doubtful organic cases than uncertain clinical signs.

Korsakow's Psychosis in Association with Malaria.—Hildred Carlill (*Lancet,* April 28, 1917) reports a case with the typical mental symptoms of Korsakow's syndrome and bilateral absence of the knee jerks, occurring in a man about forty-five years old in whom malaria was the only demonstrable cause. The patient did not have syphilis, as proved by negative serum and spinal fluid Wassermann reactions, and he was known not to have been alcoholic. In addition to malaria he was the victim of a mild grade of gout and had previously had an attack suggestive of beri-beri. There are records in the literature of the probable association of Korsakow's syndrome with malaria, as well as with other fevers, but the association seems to be a rare one.

Relation of Low Blood Pressure to Death in Traumatic Shock.—F. H. Pike and Helen C. Coombs (*Journal A. M. A.,* June 23, 1917) bring out several facts, drawn from experiments on animals, which throw light on the cause of death from shock. When brain and medulla have been deprived of blood for ten to twenty minutes changes occur in the staining reactions of their cells. These damaged cells are more susceptible to strychnine than normal ones, and paralysis and death may result from its administration during the resuscitation period. Recovery of such damaged cells will take place if enough oxygenated blood is supplied. Reduction of the blood pressure during resuscitation will result fatally and increasing it will hasten recovery. It would seem that one of the most important therapeutic measures in the treatment of traumatic shock would be the elevation of the systemic blood pressure. It remains for medicine to find suitable means for accomplishing this in man in an effective and satisfactory manner.

Etiology and Diagnosis of Acute Endocarditis in Children.—G. H. Withers (*Illinois Medical Journal,* April, 1917) considers that diseases of the heart should not be regarded from the old standpoint of stenosis or regurgitation of a certain valve, but that the heart should be treated as an organ invaded in the process of a bacteriemia. From this point of view a careful etiological qualification of the infective agent should be studied. The symptom complex arousing suspicion of acute endocarditis consists of the presence of an apical systolic murmur not modified by pressure with the stethoscope or by respiratory pauses, an irregular pulse, and a misplaced apex beat with or without an increase in cardiac dullness following any infectious process. Other symptoms may be embolism producing hemiplegia, and also punctate hemorrhages into the skin and mucous membranes while a blood culture and leucocyte count may aid in diagnosis.

Value and Significance of Blood Pressure Formulas.—Francis Ashley Faught (*Medical Record,* May 12, 1917) insists that blood pressure observations must be accurately made and recorded, and averages based upon a number of readings are of much more value than isolated tests. The systolic pressure alone is of far less value than when considered in relation to the diastolic pressure, the pulse pressure, and pulse rate. Formulas should be used with great caution as they are often misleading, while marked departure from the normal ratio of systolic, diastolic, and pulse pressure indicates an abnormal state of the circulation. The maintenance of the 3:2:1 ratio usually means an efficient circulation even with a markedly elevated systolic pressure. Diastolic pressure is the best indication of peripheral resistance; small pulse pressure in high pressure cases is suggestive of myocardial involvement, and pulse pressure is of value in determining circulatory efficiency and cardiac output.

Delicate Method for the Detection of Mercury.—John A. Elliott (*Journal A. M. A.,* June 9, 1917) points out the several shortcomings of the methods so far devised, including their relative lack of delicacy and the danger of the loss of some of the mercury in the course of making the tests. He describes a new and quite simple test which is delicate to 0.015 mgm. in 500 mils of water. It consists in acidulating the fluid to be tested with concentrated hydrochloric acid, adding copper dust, shaking thoroughly for several minutes, allowing the copper to settle and decanting most of the supernatant fluid. The copper dust is then collected on a filter, washed with alcohol and ether, and dried. It is then placed in a small glass bulb with a long neck, one or two small pieces of magnesite added, and a plug of washed asbestos inserted in the neck, which is then slightly constricted and in which there is then inserted a small roll of dentists' gold leaf. The copper is then gradually brought to a red heat, which drives off all of the mercury to be collected as a distinctly visible amalgam on the gold leaf. For fluids containing large amounts of protein the mercury must be dissociated from its combination with the aid of heat and concentrated sulphuric acid and condensed in distilled water, which is then subjected to the test as described.

Proceedings of Local and National Societies

AMERICAN GYNECOLOGICAL SOCIETY.

Forty-second Annual Meeting, Held at Pittsburgh, Pa., May 31 and June 1, 1917.

The President, Dr. FRANK FARROW SIMPSON, Pittsburgh, Pa., in the Chair.

(*Concluded from page 240.*)

Relation of the Parathyroid System to the Female Genital Apparatus.—Dr. EUGENE H. POOL, of New York, summarized his observations as follows: No direct relationship had been established between the parathyroids and the female sex organs, and no morphological changes in the parathyroids had been noted during pregnancy, yet apparently there was a connection between the parathyroids and the sex processes in the female. Tetany, the clinical evidence of insufficient parathyroid function, was somewhat prone to occur in menstruating, pregnant, and puerperal women, as well as in patients suffering from gynecological diseases or who had undergone gynecological operations. The cause of maternal tetany was now referred to parathyroid insufficiency. The function of the parathyroids was apparently closely connected with calcium. There was reason to believe that maternal tetany and lactation tetany were associated with calcium deficiency. Latent tetany, or a subtetanic condition, was much more common in pregnant and puerperal women than was usually assumed. Tetany in newborn infants, the offspring of tetanic mothers, was usually fatal within a short time after birth. In the treatment of maternal tetany, the administration of calcium in large doses was followed by beneficial results in the great majority of the cases.

Thyroid Gland in Relation to Gynecology and Obstetrics.—Dr. DAVID MARINE, of Cleveland, said in summarizing that it might be stated that there was evidence in man of a thyroid sex gland interrelation recognizable in the female in association with the development of secondary sexual characters, with the menstruation, and with pregnancy, and also in the male at puberty, but to a very slight degree. The meager evidence available would tend to indicate that the interstitial cells of the ovary and perhaps, also, the adrenal cortex played a major rôle in this relation in the female, as certainly the cells of Leydig did in the male. The thyroid enlargement was of the nature of a work hypertrophy to stimulate metabolism identical in appearance and so far as they knew, different only in degree from that seen in simple goitre. Both of these reactions could be controlled and prevented either indirectly by giving iodine or directly by giving the iodine containing hormone in physiological doses.

Endocrine Function of the Pancreas and Its Relation to the Sex Life of Women.—Dr. A. J. CARLSON, of Chicago, drew the following conclusions: All evidence supported the view that some substance or hormone secreted by the islands of Langerhans into the blood was necessary for utilization of sugar by the tissues. This function was specific for the pancreas. Other endocrine organs might influence sugar metabolism in a superficial way by altering the sugar mobilization—adrenals, thyroid—or by increasing or decreasing the rate of oxidation in the body in general. The rest of the endocrine glands could not maintain the power of the tissues to oxidize sugar in the absence of the pancreas, and the hypactivity or hyperactivity of other endocrine glands did not produce actual diabetes in the presence of a normal pancreas. While the failure of the tissues to use sugar in the absence of the pancreas was the central and definitely established fact, there were probably other primary defects involved in the development of acidosis, lipemia, increased metabolism, lowered resistance to infections, etc. All the evidence pointed to the view that true diabetes mellitus in man was primarily the result of pancreatic deficiency islets. There was at present no organotherapy of diabetes, experimental or clinical. There was at present no evidence of any specific relations of the endocrine functions of the pancreas to the gonads, male or female, or to menstruation, pregnancy, and lactation. Absolute diabetes, induced after conception, led to death of the fetus. Absolute diabetes probably rendered conception impossible. Partial diabetes under careful dietary control permitted ot normal sex life of women—menstruation, normal pregnancy, normal child, lactation—and pregnancy under such conditions did not aggravate the diabetes, but in the absence of such dietary control the condition of pregnancy aggravated the diabetes in the mother, and uncontrolled diabetes in the mother was extremely injurious to the fetus. There was some evidence that in late stages of pregnancy the fetal pancreas might function for the mother.

Influence of Adrenal Bodies upon the Genital System.—Dr. SWALE VINCENT, of Winnipeg, Manitoba, Canada, summarized his remarks as follows: What was called the adrenal body represented the anatomical association of two elements, each of which was derived from a separate and independent system. The adrenal proper, or cortex, was a part of the cortical or interrenal system. The medulla was simply an accumulation of chromophil cells of the same nature histologically, chemically, and pharmacodynamically, as similar masses of cells in other parts of the body. There was no clear evidence that these two systems were functionally related. The adrenal medulla, as well as the chromophil tissue generally, was developed from the sympathetic nervous system. Its duty seemed to be to facilitate the functions of this system in certain physiological emergencies. The adrenal cortex, as well as the accessory cortical adrenals, was developed from the germ epithelium, and the evidence was now strongly in favor of the view that it had certain important functions in connection with the development and growth of the sex organs. There was considerable clinical evidence that tumors of the adrenal cortex were frequently associated with sex abnormalities. The clinical evidence also

favored the view that when cortical tumors occurred in the female, an accentuation of male secondary sexual, characteristics developed and simultaneously a hypoplastic condition of the internal generative organs supervened. The additional evidence as to a connection between adrenal cortex and the sexual organs was furnished by the enlargement of the cortex during breeding and pregnancy. Feeding young animals with adrenal gland substance seemed to stimulate the growth of the testes. It was possible that a final solution of the problem would only be reached when the more general problem of the relationships between the ductless glands should have been solved.

Relation of the Ovary to the Uterus and the Mammary Gland.—Dr. Leo Loeb, of St. Louis, said that the ovary was a complex gland of which the most important constituents were follicles in various stages of growth and atresia, and corpora lutea. In addition we found in some species interstitial gland and some embryonic structures developing parthenogenetically from eggs. Cyclical changes occurred both in the ovary and secondarily in the uterus and mammary glands. The primary cyclical changes in the ovary were in sequence: follicle ripening, ovulation, and corpus luteum formation. In some species ovulation was accompanied by degeneration of all but the smallest follicles. An elaborate selfregulating mechanism controlled ovulation. Normally the corpus luteum inhibited ovulation. During pregnancy the life of the corpus luteum was prolonged. Experimentally ovulation could be influenced at will, accelerated by excising all corpora lutea, or retarded by producing artificial deciduomata. The retarding action of the corpus luteum was chemical, not mechanical. The corpus luteum had a sensitizing action upon the uterus. This action could be analyzed by experimental methods. If the uterus was incised or mechanically stimulated at the time during which the corpus luteum was elaborating this growth substance, maternal placenta, deciduoma, was formed. The mechanical stimuli, therefore, assumed in this respect the function which the ovum exerted under normal conditions. The form of growth response of each species was characteristic. The localization of sensitization varied in different species, being limited to the uterus in rabbits and guineapigs, but distributed more widely in the human female. No specificity existed in the sensitizing substance given off by the corpus luteum as far as different individuals of the same species were concerned. The life period of experimental deciduomata was short except in pregnancy, during which their persistence was prolonged. Corresponding to and dependent upon cyclical ovarian changes, uterine cyclical changes occurred. The cycle consisted of heat and growth, with associated glandular activity, regression, and .interval Heat probably was due to maturation of the follicles and dependent upon the absence of the corpora lutea; growth activity was the result of corpus luteum secretions: regression marked the cessation of corpus luteum secretion, which was followed in the interval by a condition of rest. Pregnancy causing a persistence of the corpus luteum was characterized by an accentuation, but not a prolongation, of the active phase and an inhibition of the uterine cyclical changed throughout gestation. While it was possible to produce experimentally during pregnancy a new ovarian cycle through excision of the corpora lutea, such a new ovarian cycle was not followed by a new uterine cycle. During pregnancy a mechanism was at work preventing the uterine mucosa from responding to the stimuli given off by various ovarian structures. It followed that the corpus luteum subserved at least two functions, inhibiting ovulation and producing a substance which caused growth in the uterus. The ovary showed other noncyclical functions. It had a trophic influence on the genitals and either primarily or secondarily determined the development of the secondary sexual characters. The ovary likewise controlled the developments of the mammary glands. It exerted a trophic influence on this organ and determined its normal cycle. During heat and subsequent to ovulation proliferated changes occurred; these ceased while the corpus luteum developed and functioned. The incidence of breast cancer in mice was greatly reduced by castration.

Transplantation and Retention of Ovarian Tissue after Hysterectomy.— Dr. William P. Graves, of Boston, drew the following conclusions: Specific surgical menopause symptoms consisted chiefly of vasomotor disturbances in the form of hot flushes. Theoretically, vasomotor changes of the artificial menopause were due to a break in the uteroovarian functional harmony, by which the physiological balance of the glands of internal secretion was upset with consequent dysfunctional activity. After extirpation of the uterus, vasomotor disturbance ensued with approximately equal frequency, whether the ovaries were retained *in situ*, totally ablated, or transplanted. Retention of ovarian tissue after hysterectomy was of little or no physiological value and might be productive of serious harm to the patient.

Preparation and Standardization of Ovarian and Placental Extracts.—Dr. William H. Morley, of Detroit, said that a more uniform method of preparing extracts must be instituted. Some method for the standardization of these extracts must be discovered, in order to facilitate the comparison of the results of the different laboratory workers and clinicians. Many results obtained in the laboratory or in the clinic were due to the faulty preparation of extracts. The isolation of the active principle of the ovary and the placenta would clear up many, if not all, of these mooted points.

Placenta Regarded as a Gland of Internal Secretion.—Dr. Robert T. Frank, of New York, said that the experimental work of the last decade proved that Halban was correct in ascribing to the placenta an action upon the uterus and breasts. Placental extracts, mainly the lipoid fraction, rapidly induced hyperplasia of the uterus and breast gland tissue and nipples in castrated or in noncastrated animals. The chemical substance which induced these changes was thermostabile, very resistant to strong alkalies and acids, and completely soluble in ninety-five per cent. alcohol. The substance appeared identical in its physical, chemical,

and biological properties with a similar substance obtained from the corpus luteum. The substance could exert its influence in the absence of the thyroids, adrenals, pancreas, or in the absence of thyroid and adrenals combined. In view of the apparent identity of corpus luteum and placental substance, the question arose whether the placenta acted merely as a storage reservoir for corpus luteum secretion during the latter half of pregnancy, or whether the placenta elaborated a hormone of its own.

Relation of the Sex Glands to Metabolism.—Dr. John R. Murlin and Dr. Harold C. Bailey, of New York, made the following points: Their results upheld the work of Loewy and Richter so far as the reduction in metabolism after castration was concerned. Removal of the ovaries of their dogs was followed by an increase in weight in both and a lowering of the metabolism in one from twelve to seventeen per cent., and in the other from six to fourteen per cent. They believed that indirect action had a bearing on this reduction, and did not believe that the indications pointed decisively to the loss of a specific stimulus from the ovary affecting the oxidative processes of the cells. To throw more light on this complex subject further experiments with animals were necessary.

Dr. George Gellhorn, of St. Louis, had observed great improvement in two cases of kraurosis vulvæ. In one there had been permanent relief after feeding the patient ovarian extract; another patient was temporarily improved after injecting the extract. Neither suggestion nor deception was permitted to enter. The sole criterion was a change from the dry, glistening, unyielding tissue to a soft, moist, and pinkish mucosa which bore no evidence of scratching. A temporary restoration of locomotion in two case of senile osteomalacia with the same therapy was hard to explain on the ground of suggestion.

Dr. John G. Clark, of Philadelphia, said, referring to Doctor Goetsch's paper, that he could not help but feel that the preservation of normal ovarian tissue was of very vital value in younger women. He made this statement based upon a long series of cases. He had observed, however, that postoperative convalescence was not satisfactory in the younger women in the ward whose diseased ovaries were preserved. In fibroid cases in young women in whom the ovaries were normal, he saw definitely better results than under the older methods where the ovaries were removed.

Dr. Francis Carter Wood, of New York, stated that he had tried the Beatson operation experimentally and had observed the influence of the removal of the ovaries on carcinoma of the breast. This operation produced a temporary effect, which was no doubt due to the removal of the secreting substance of the ovary or due to nutritional and vascular conditions. In primary tumors in mice he gave large injections of corpus luteum and x rayed a number of the mice; no effect was produced, so that this substance when injected into an animal caused hypertrophy of the breast itself and growth of the epithelium. The cancer tissue lost its power to respond to this peculiar substance.

Dr. C. C. Guthrie, of Pittsburgh, said in reference to Doctor Graves's work on the transplantation of ovaries, that his interest was aroused years ago when he conducted experiments in laboratory fashion on the transplantation of ovarian tissue. In the later nineties or shortly thereafter, Dr. Robert T. Morris, of New York, reported the birth of a child in a woman whose ovaries had been removed and replaced by other ovaries. So far as he knew, this was the first authentic account of the reproductive function after the transplantation of ovaries.

Dr. Herman J. Boldt, of New York, said, referring to the case reported by Doctor Morris, that Doctor Morris had been waiting for two weeks for him (Doctor Boldt) to supply a patient who had had normal ovarian tissues. He did a ventrosuspension on a woman and gave him half of one ovary. In the case of his patient Doctor Morris had removed both ovaries two years previously. The patient had not menstruated during that interval. After the transplantation of ovarian tissue, the patient began to menstruate again, subsequently became pregnant, and bore a child. The child was still living.

Ureteral Stricture.—Dr. Guy L. Hunner, of Baltimore, said that ureteral stricture was far more frequent than formerly suspected. Too much importance was given in the literature to congenital stricture. Most of the cases were due to systemic infection from a distant focus, such as the tonsils, teeth, or sinuses. The symptoms were local pain at the site of the inflammatory area, renal pain due to back pressure, referred pain in the bladder, rectum, hip, thigh, etc. There was elevation of temperature with and without infection of the urine. Gastrointestinal symptoms and mental symptoms were referred to. The diagnosis must be made from kidney lesions and from lesions of practically every abdominal organ, and also from sacroiliac and other hip joint lesions. The treatment consisted of dilatation from bladder approach or of retrograde dilatation through the extraperitoneal route.

Cystoscopic Study of the End Results of Various Forms of Cystocele Operations.—Dr. LeRoy Broun and Dr. Reginald M. Rawls, of New York, stated that for the purpose of their preliminary report twelve patients were found to have a practically normal plane of the base of the bladder. Three of these had a mild trigonitis. The character of cystocele operations done upon these patients varied greatly. The larger number consisted of freeing the bladder from the vaginal mucosa and uterus, coapting the prevesical fascia under the bladder, and approximating the vaginal mucosa after the excess had been removed. A few of the operations consisted of a simple separation of the vaginal mucosa on each side of the median incision, the removal of the excess, and an approximation of the edges under the bladder. One was after the old Emmet method, and in one the bladder was anchored on a higher plane to the broad ligaments and uterus, after its separation from the vaginal mucosa and uterus. In another series of cases the base of the bladder was found to be thrown into horizontal folds of varying degrees of prominence. There were eight patients in this group. In half of these there was no displacement of the mouths of the ureters; in the other

four this displacement was very noticeable. The operations done in these cases were as follows: In three, after the separation of the bladder from the vaginal mucosa and the uterus, the prevesical fascia was united under the bladder, the excess of the mucosa was removed, and the edges coapted. In three others, after the separation of the bladder from the mucosa and the uterus, the base of the bladder was anchored by silk sutures higher up on the broad ligament and uterus, or to the shelf made by the united broad ligaments, if the uterus was removed. In one case an oval denudation was made on the anterior wall and the edges coapted. The cystoscopic examination of these eight patients showed the base of the bladder in each instance to be thrown into horizontal folds of varying depth and extent. In some the mouths of the ureters were found displaced; in others, in addition to the displacement, one or both could not be located. Trigonitis of a mild degree of the granular or membranous type was the usual accompaniment.

The uniform method of putting 300 c. c. of water in the bladder was followed in the entire cystoscopic study. When abnormalities were found, as in these and other cases, the bladder was distended to its full capacity to determine whether or not the folds would disappear. In no instance was this accomplished. The convolutions and sulci remained as first seen under the 300 c. c. distention, showing that they were of a permanent character. The kind of operation done did not seem to influence in a marked degree the character and extent of the permanent folds present. This review of the study of the end results on these patients, from the viewpoint of the anatomical condition in which the base of the bladder was left, was not flattering. That the abnormal conditions found were of a permanent character could not be questioned, since they did not disappear under full distention.

A Vaginal Subtotal Hysterectomy Technic Applicable to Cases with or without Procidentia Uteri or Cystocele.—Dr. Dougal Bissell, of New York, described a technic for subtotal vaginal hysterectomy. Subtotal vaginal hysterectomy was preferable to total hysterectomy when the vaginal route for hysterectomy was the route of choice. Subtotal vaginal hysterectomy was less difficult to perform than total vaginal hysterectomy. There was less liability to secondary hemorrhage, and should secondary hemorrhage occur it was under easy control. As the uterine arteries were not tied the uterine and ovarian circulations were not interfered with. There was minimum liability to sepsis as the posterior cul de sac was not opened. Peritoneal drainage was not resorted to. The union was primary. When subtotal vaginal hysterectomy was performed, procidentia of the uterus and cystocele could be corrected at the same time. For procidentia the uterosacral ligaments in additon were shortened. For cystocele the newly formed uterine body was interposed as in the Watkins operation, or the body could be returned to the peritoneal cavity and the posterior surface and part of the base of the bladder sutured to its anterior face. Reconstruction of the fascial shelf between the bladder and the anterior vaginal wall then became necessary.

Clinical Study of Blood Pressure, Pulse Pressure, Hemoglobin in Postoperative Shock, Postoperative Hemorrhage, and Postoperative Cardiac Dilatation.—Dr. John O. Polak, of Brooklyn, New York, stated that the deductions to be drawn from the studies were: There was a constant rise of from five to fifteen points in the hemoglobin readings following anesthesia with ether, when such anesthesia occupied more than thirty minutes. Consequently, allowance must be made for this rise in using hemoglobin estimations as a diagnostic sign in internal bleeding. The erythrocyte count was also increased, but its variation from the preoperative was so slight that it did not warrant any conclusions. In the majority of cases there was a moderate fall in both the systolic and diastolic blood pressure following ether anesthesia. The blood pressure returned to normal, that is, to preoperative reading, in from twelve to forty-eight hours. The inhalation of oxygen after the withdrawal of the ether vapor diminished this fall in blood pressure, but was only transient in its effect. In cases of shock, especially where much blood had been lost during the operation, the fall in blood pressure was greater than after long operation without blood loss, dropping from ten to fifteen millimetres. The pulse pressure was a better index of hemorrhage or cardiac failure than the systolic pressure. There was a constant rise in the leucocyte count in hemorrhage, while in shock the leucocytes fell.

Book Reviews

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Compend of Human Physiology. Especially Adapted for the Use of Medical Students. By Albert O. P. Brubaker, A. M., M. D., Professor of Physiology and Medical Jurisprudence in the Jefferson Medical College; Formerly Professor of Physiology in the Pennsylvania College of Dental Surgery; Formerly Lecturer on Anatomy and Physiology in the Drexel Institute of Art, Science, and Industry, etc. Fourteenth Edition, with Twenty-six Illustrations. Philadelphia: P. Blakiston's Son & Co., 1917. Pp. viii-262. (Price $1.25.)

Quiz compendii are to medical literature what predigested food tablets are to the gastronomic art. The fact that this one has reached its fourteenth edition renders comment superfluous. It is a handy, concise volume, and a complete mastery of its contents would undoubtedly suffice for any State board; whether or not it would be the ideal sort of knowledge of physiology for a practising physician is another story.

Transactions of the American Urological Association. Fifteenth Annual Meeting at St. Louis, Missouri, April 17, 18, and 19, 1916. Publication Committee: Richard Frothingham O'Neil, George Gilbert Smith, Edward L. Young, Jr. Brookline, Mass. The Riverdale Press, 1917. viii-295.

This volume of about 300 pages contains the papers presented by the various members of the society at the fifteenth annual meeting which was held at St. Louis April 17-19, 1916. In addition to numerous photographs, including x ray pictures, a complete report of the discussion is given. Lists of the members, arranged alphabetically and geographically, are added. The volume represents the newest work in this particular subject and is a valuable addition to the library of those specially interested in this branch of medicine.

After Office Hours

A page full of pictures of gas masks of war and peace in *Leslie's* for July 5th suggests to us the idea of a mask for the anesthetist to wear this hot weather. Who has an idea for it?

* * *

The regeneration of a bum, an alcoholic who has sunk to the gutter level, is told in a story by Clarence Buddington Kelland, beginning in the *Saturday Evening Post* for August 4th. It is called The Source.

* * *

The Midsummer Fiction Number of *Harper's* comes out in a delightfully cool cover. It is full of good things; among them we mention a story which is an intricate psychological study, The Hand of Jim Fane, by Katharine Fullerton Gerould.

* * *

Ye Rounde Table is a little literary and dramatic magazine which is bravely struggling through its first volume. It bears the caption, "Uniquely setting forth matters literary and dramatic for the delectation of ye lover of good things." The editor is H. Warburton-Joy, whether Miss or Mrs. we know not.

* * *

Speaking of a sense of humor, we are sorry to see that Stephen Leacock is trying to write too much. Leacock, who is a professor in a Canadian college, sprang into fame by a series of nonsense sketches some years ago. Sunshine Sketches, Behind the Beyond, and others were really funny. But with fame came such a demand for his work that he is overproducing. His contribution to the August number of *Hearst's*, The Sorrows of a Summer Guest, is only mildly funny.

* * *

Since time immemorial the graduation address has been the subject of wit. The Problems of Life, Pleasure and Duty, and other large themes have been the favorites generation after generation. At last we read in the *Outlook* for July 25th of a Minnesota high school boy who reached the hearts of his audience by a talk on The Farmer and His Wheat Market, illustrating by means of an actual sack of wheat how much the wheat shrinks in passing from the farmer to the ultimate consumer.

* * *

The *Star Bulletin*, published in Sing Sing Prison, gives in its August number a sketch of the work done by Dr. Bernard Glueck and his assistants in the psychiatric clinic. Doctor Glueck has only been at this work a year, but he has already attracted countrywide attention by his work. An interesting feature of this same number is an excellent poem, called The Captain of the Pit, by a former prisoner. It is a tale of a sunken ship, the speculation of the monsters of the deep about it, the appearance of the submarine which sunk it, and their crowning of the submarine as the "captain of the pit."

Official News

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending August 1, 1917:

Bahrenburg, L. P. H., Surgeon. Directed to proceed to Little Rock, Ark., on special temporary duty.

Billings, W. C., Surgeon. Granted six weeks' leave of absence on account of sickness from June 26, 1917.

Carter, H. R., Assistant Surgeon General. Directed to proceed to Camp Meade, Md., on special temporary duty.

Clark, Taliaferro, Surgeon. Granted two weeks' additional leave of absence on account of sickness from July 17, 1917; granted two weeks' leave of absence from July 31, 1917.

Curley, C. P., Acting Assistant Surgeon. Directed to proceed to Providence, R. I., for instruction in examination of passengers and crews on arriving vessels.

Currie, D. H., Surgeon. Relieved from duty at Leprosy Investigation Station, and directed to proceed to Boston, Mass., and assume charge of the quarantine station.

Galloway, T. C., Jr., Assistant Surgeon. Directed to proceed to Columbia, S. C., on special temporary duty.

Grimm, R. M., Passed Assistant Surgeon. Relieved at Little Rock, Ark., and directed to proceed to Atlanta, Ga., on special temporary duty.

Hayne, T. B., Scientific Assistant. Directed to proceed to Camp Meade, Md., on special temporary duty.

Herring, R. H., Passed Assistant Surgeon. Granted seven days' additional leave of absence from July 30, 1917.

Lee, F. S., Consulting Physiologist. Directed to proceed when necessary to factories in Northern and Middle Western States for studies of industrial fatigue.

Phelps, E. B., Professor. Directed to proceed to Chillicothe, Ohio, on special temporary duty.

Pincus, Sol, Assistant Sanitary Engineer. Relieved in studies of coastal waters and assigned to duties in studies and demonstrations of malaria.

Ridlon, J. R., Passed Assistant Surgeon. Directed to proceed to Little Rock, Ark., on special temporary duty.

Safford, M. V., Passed Assistant Surgeon. Directed to proceed to Columbia, S. C., on special temporary duty.

Smith, J. H., Passed Assistant Surgeon. Directed to proceed to Patterson, La., for observation of water supply used by common carriers in interstate traffic.

Sprague, E. K., Surgeon. Directed to proceed to Little Rock, Ark., on special temporary duty.

White, H. F., Passed Assistant Surgeon. Directed to proceed to Little Rock, Ark., on special temporary duty.

White, M. J., Surgeon. Relieved at Marine Hospital, St. Louis, Mo., effective July 10, 1917.

Williams, C. L., Passed Assistant Surgeon. Directed to proceed to San Diego, Cal., on special temporary duty.

Wilson, J. G., Assistant Surgeon. Directed to proceed to Little Rock, Ark., on special temporory duty.

Yarbrough, H. C., Assistant Surgeon. Directed to proceed to Little Rock, Ark., on special temporary duty.

Appointments.

Dr. Anthony A. S. Giordano, Dr. Mark Victor Ziegler, and Dr. James Edge Faris appointed and commissioned assistant surgeons from date of oath.

Promotions.

Assistant Surgeons Francis A. Carmelia, Liston Paine, Lionel E. Hooper, M. V. Safford, and Ernest W. Scott promoted and commissioned as passed assistant surgeons.

Casualty.

Acting Assistant Surgeon T. Dyson Walker, on duty at St. John, N. B., died at the Massachusetts General Hospital, Boston, Mass., July 22, 1917.

Births, Marriages, and Deaths

Died.

Chappell.—In Jacksonville, Fla., on Friday, July 27th, Dr. Thomas A. Chappell, aged seventy-two years.

Curlette.—In Monticello, N. Y., on Saturday, July 14th, Dr. John F. Curlette, aged sixty-five years.

De Frantz.—In Denver, Colo., on Wednesday, July 18th, Dr. Charles D. De Frantz, aged

Hannan.—In Hoosick Falls, N. Y., on Thursday, July 26th, Dr. Thomas H. Hannan, aged fifty-two years.

Harpel.—In Coshocton, Ohio, on Monday, July 30th, Dr. Frederick T. Harpel, of Shamokin, Pa., aged forty-one years.

Hodgson.—In Toronto, Ont., on Saturday, August 4th, Dr. John Potter Hodgson, of New York, N. Y., aged forty-eight years.

Kelsey.—In New York, N. Y., on Saturday, August 4th, Dr. Charles Boyd Kelsey, aged sixty-seven years.

Kocher.—In Berne, Switzerland, on Wednesday, August 1st, Dr. Theodore Kocher.

Maine.—In Albany, N. Y., on Tuesday, July 31st, Dr. Frank E. Maine, aged sixty years.

Rave.—In Hicksville, N. Y., on Monday, July 23d, Dr. Edward G. Rave, aged seventy-three years.

Ray.—In Cuba, Ill., on Wednesday, July 25th, Dr. Blake E. Ray, aged twenty-six years.

Smith.—In Milford, N. H., on Friday, July 27th, Dr. Arthur W. Smith, aged sixty-four years.

Wilkins.—In Sherman, Tex., on Saturday, July 21st, Dr. John H. Wilkins, of Victoria, Tex., aged sixty-three years.

Blood impoverishment is seldom corrected by iron alone—or by ordinary forms of iron.

Hemaboloids-ARSENIATED
(WITH STRYCHNIA)

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Japan's Leprosy Fight.—Japan has done much to fight the ravages of leprosy, but plans to do much more in the way of furnishing hospitals for lepers, says an Associated Press correspondent. Doctor Kensuka, a prominent Tokio physician, has been lecturing extensively on leprosy, the scourge of the Far East. Leprosy for a long time has been considered hereditary, leading often to the rupture of marriage engagements, to divorces, and also to the complete disappearance from society of the afflicted man or woman. Doctor Koda declares that of 942 patients examined by him, only 255, or twenty-seven per cent. have fellow sufferers in their own family. He believes that the disease is not hereditary in the sense that insanity is hereditary. It cannot, he says, skip a generation and appear in the grandchildren. He considers the shunning and isolation of leprous families unnecessary. Only the individual patients must be segregated, he believes. In Japan there are 23,800 lepers registered, but the families involved aggregate 990,000 persons. About 1,000 persons are now segregated. Doctor Koda declares it would cost only the price of a new battleship to inaugurate a thorough isolation policy, and thinks that in this way the disease could be stamped out, at least as a family curse; within twenty years.

Tuberculosis Conferences to Meet in the Fall.—The six sectional conferences to be held in October and November this year will be of unusual importance due to the war situation, says the *Bulletin* of the National Association for the Study and Prevention of Tuberculosis, July, 1917. It is evident thus early that there will be need for serious discussion of many new problems with which antituberculosis workers have been confronted. Exactly what these problems will be cannot be foretold at this date, but the national association is planning to devote as many sessions as will be necessary to discuss tuberculosis as a war problem. By October the new national army will be in camp, and the plans of the army medical authorities for safeguarding the health of the recruits will be known. The action taken on recommendations of the special committee of the national association and the subcommittee on tuberculosis of the General Medical Board, Council of National Defe , will also be known, as will be the measures effected to diagnose cases of tuberculosis among those drafted for the army. State and local associations will be ready to report on measures undertaken and contemplated. The sectional conferences, therefore, will be councils of war to decide on future programs and methods.

Every antituberculosis worker in the country ought to plan to attend the conference with which his State is allied. Each association, at the next meeting of its board or executive committee, should vote to pay the expenses of at least one representative to his conference. The national association urges that this be done immediately so that arrangements to attend may be made as far in advance as possible and the national association notified of the number of persons who will attend. The conferences will meet as follows: The New England Conference in Rutland, Vermont, October 4th and 5th; the North Atlantic Conference in Baltimore, Maryland, October 18th and 19th; the Southern in Chattanooga, Tennessee, November 9th and 10th; the Mississippi Valley in St. Paul and Minneapolis, Minnesota, October 8th, 9th and 10th; the Northwestern in Portland, Oregon, October 15th and 16th; and the Southwestern States at the Grand Canyon of Arizona, October 22d and 23d. The continuation committees announced in the April *Bulletin* are considering topics and speakers for the program and the names of officers for each conference. Send suggestions to the national association, where they can be listed and submitted to the committees for consideration.

New Publications Received

Handbook of Anatomy. Being a Complete Compend of Anatomy, Including the Anatomy of the Viscera, a Chapter on Dental Anatomy, Numerous Tables, and Incorporating the New Nomenclature Adopted by the German Anatomical Society, Generally Designated the Basle Nomenclature, or BNA. By JAMES K. YOUNG, M. D., F. A. C. S., Professor of Orthopedic Surgery, Philadelphia Polyclinic; Associate Professor of Orthopedic Surgery, University of Pennsylvania; Orthopedic Surgeon to the Philadelphia General Hospital, etc. Fifth Edition, Revised and Enlarged. With One Hundred and Fifty-four Engravings, some in Colors. Philadelphia: F. A. Davis Company, 1917. Pp. xv-435. (Price $2.)

Building Human Intelligence. By Dr. ARNOLD LORAND, Physician to the Baths, Carlsbad. Translated from the German by PHILIPP FISCHELIS, M. D., Acting Associate Professor of Histology and Embryology, University of Pennsylvania. Philadelphia: F. A. Davis Company, 1917. Pp. xii-451. (Price $3.)

Immune Sera. A Concise Exposition of Our Present Knowledge of Infection and Immunity. By CHARLES FREDERICK BOLDUAN, M. D., Director, Bureau of Public Health Education, Department of Health, City of New York, and JOHN KOOPMAN, B. S., Bacteriologist, Seriological Laboratory, Department of Health, City of New York. Fifth Edition, Thoroughly Revised. New York: John Wiley & Sons, Inc., 1917. Pp. viii-206. (Price $1.50.)

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of CHARLES L. MIX, A. M., M. D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume III: *The Eye, Ear, Nose, and Throat.* Edited by CASEY A. WOOD, C. M., M. D., D. L.; ALBERT H. ANDREWS, M. D.; GEORGE E. SHAMBAUGH, M. D. Series 1917. Chicago: The Year Book Publishers, 1917. Pp. 372. (Price $1.50.)

Thirteenth Report of the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis. University of Pennsylvania. Philadelphia: Henry Phipps Institute, 1917. Pp. 459.

Science and Learning in France. With a Survey of Opportunities for American Students in French Universities. An Appreciation by American Scholars. The Society for American Fellowships in French Universities, 1917. Pp. 38.

Hospital of the Protestant Episcopal Church in Philadelphia. Medical and Surgical Reports of the Episcopal Hospital. Volume IV. Philadelphia: William J. Dornan, 1916. Pp. 326.

Annual Report of the Department of Health of the City of New York. For the Calendar Year 1916. New York City, 1917. Pp. 180.

Notes on Galvanism and Faradism. By E. M. MAGILL, M. B., B. S. (Lond.), D. P. H., R. C. S. I. (Hons.). With Sixty-seven Illustrations. New York: Paul B. Hoeber, 1916. Pp. xvi-220. (Price $1.50.)

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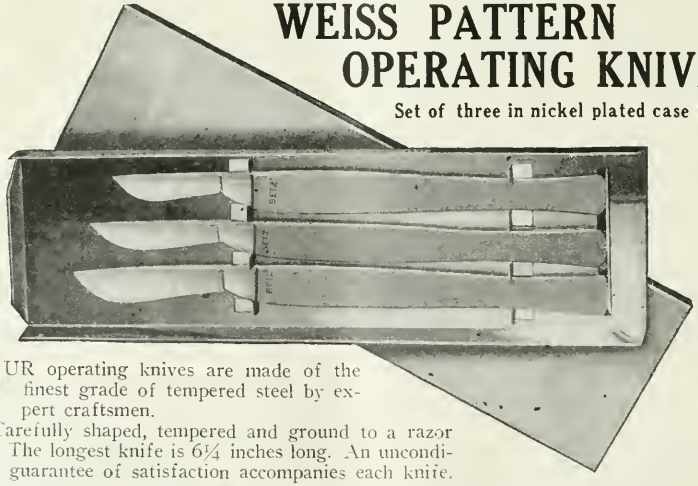

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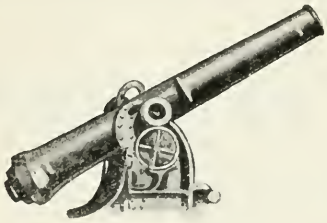

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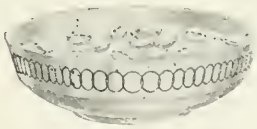

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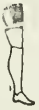

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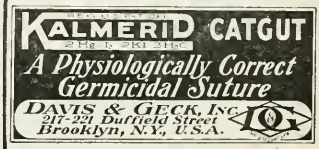

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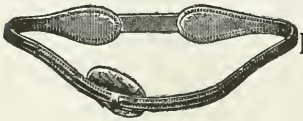

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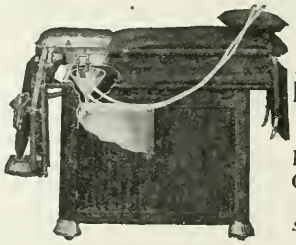

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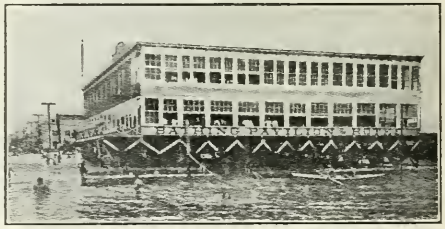

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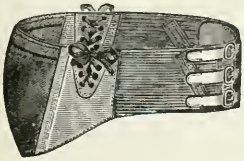

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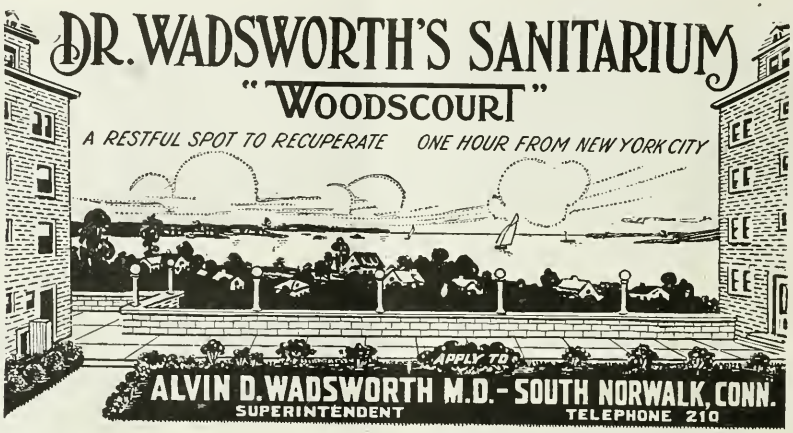

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